



Amos Johnson, PhD

404.784.1593

amosjohnsonjr@gmail.com

My research background is in pattern recognition and pattern discovery. I have developed pattern recognition algorithms to identify people from their walking patterns and created algorithms to discover patterns in video surveillance data. As an Associate Professor, I have focused on providing students with the best teaching instruction possible and creating enhancements to their learning process in computer science.

Skills

Project Management. C/C++. HTML. PHP. MySQL. Python. Artificial Intelligence. Computer Vision. Instructional Design. Communicator. Podcasting. Content Marketing. Web Apps.

Employment

Morehouse College / Associate Professor in Computer Science

August 2005 - PRESENT, Atlanta, GA

Georgia Institute of Technology / Post-Doctoral Fellow

May 2002 - July 2005, Atlanta, GA

Morris Brown College / Graphical Software Researcher

October 1996 - August 1997, Atlanta, GA

AT&T Bell Laboratories/ General Researcher

May 1994 - August 1994, Atlanta, GA

PhD Thesis

Johnson, "A method for human identification using static, activity-specific parameters" Thesis, Georgia Institute of Technology, April 2002

Education

Georgia Institute of Technology / Ph.D. in Electrical Engineering

May 2002, Atlanta, GA

Georgia Institute of Technology / MS in Electrical & Computer Engineering

December 1998, Atlanta, GA

Georgia Institute of Technology / BS in Electrical Engineering

October 1996, Atlanta, GA

Morehouse College / BS in General Science

May 1996, Atlanta, GA

Faith School of Ministry

May 2009 / Smyrna, GA

Consulting**Sciaky, Inc.**

Bedford Park, Illinois

Managed the procurement process to replace their old ERP system with a new MRP/ERP system that would be assessed for their direct manufacturing process using beam welding & EB Additive manufacturing. Created requirement documents for their direct manufacturing process and business practices.

Covenant Christian School

Smyrna, GA

Led a team of technology professionals and educators to design and implement a computer science curriculum for grades K to 8.

Diverse Point

Atlanta, GA

Managed an effort to create an online education platform to train Supplier Diversity professionals.

Elam Communications

Roswell, GA

Designed an online recruitment system to identify and attract qualified candidates for their call center in Atlanta, Georgia. Conducted company-exclusive recruiting webinars for hiring suitable independent contractors to fit the company's vision to develop entrepreneurs and leaders. Participated in the ongoing development and coaching of sales associate contractors.

Morehouse Entrepreneurship Center

Atlanta, GA

Operated as their Chief Information Officer and handled all their technology needs to produce their Business Plan completions and Innovation Expos.

Faith Christian Center

Smyrna, GA

Developed and coded an online reporting system to track attendance statistics and personal records for their children's ministry. Developed and coded an online financial management system to record and manage financial donation data from church attendees that ties together their front office and back office systems.

Atlanta University Center Consortium

Atlanta, GA

Developed and coded a system that mitigated their old paper registration process of new students to a digital registration system and online storage.

Research

Interactive Visual Art Modules

Using image recognition techniques to interact with a virtual reality world, we studied the effectiveness of using non-traditional input devices and simulation environments that include artistic elements to increase a student's interest in science, technology, engineering, and math.

Learning Variations of a Single Predefined-Activity

Created soft systems to learn the various ways a single predefined activity may occur from a limited amount of visual data of the activity. Using this information, the system will classify a new instance of the activity as either belonging to one of the many variations of the activity or as an abnormally.

Gait Recognition

Our gait-recognition method recovers static body and stride parameters of subjects as they walk. Our technique does not directly analyze the dynamic gait patterns, but uses the action of walking to extract relative body parameters.

Parametric Metrics to Estimate Performance of Biometric Techniques

Parametric metrics, expected confusion and transformed expected confusion, are developed as means to estimate verification performance of biometric techniques.

Method to Predict Cumulative Match Characteristic Performance

A method to predict cumulative match characteristic (CMC) curve performance for large galleries of individuals using data from a significantly smaller gallery is derived.

Grants

National Science Foundation / \$1 Million

2006

Encouraging students to pursue undergraduate degrees in STEM fields by exposing them to fundamental STEM paradigms via Interactive visual arts modulesa

FACES / \$30k

2006

Career Initiation Grant

P&G / \$10k

2011

Mobile Computing Lab

The Leona M. and Harry B. Helmsley Charitable Trust / \$5 Million

2015

Vertically-Integrated Projects (joint grant with Georgia Tech)

Defense Intelligence Agency / \$1.5 Million

2019

Intelligence Community Center for Academic Excellence (joint grant with VA Tech)

Publications

1. E.J. Coyle, J.V. Krogmeier, R.T. Abler, A. Johnson, S. Marshall and B.E. Gilchrist, "**The Vertically-Integrated Projects (VIP) Program: Leveraging Faculty Research Interests to Transform Undergraduate STEM Education,**" Chapter in *Transforming Institutions: Undergraduate STEM Education for the 21st Century*, edited by G.C. Weaver, W.D. Burgess, A.L. Childress, and L. Slakey; Purdue University Press, West Lafayette, IN 2015; pp. 223-234.
2. E.J. Coyle, J. V. Krogmeier, Randal T. Abler, A. Johnson, S. Marshall, and B.E. Gilchrist, "**The Vertically Integrated Projects (VIP) Program -- Leveraging Faculty Research Interests to Transform Undergraduate STEM Education,**" Presented at *Transforming Institutions: 21st Century Undergraduate STEM Education Conference*, Indianapolis IN, Oct. 23-24, 2014.
3. J. Melkers, A. Kiopa, R. Abler, E. Coyle, J. Ernst, J. Krogmeier, A. Johnson, "**The Social Web of Engineering Education: Knowledge Exchange in Integrated Project Teams,**" submitted to the 2012 ASEE Annual Conference and Exposition, San Antonio, TX, June 10-13, 2012.
4. Earl C., Johnson A., Yelapaala, K., Good T. **Making project team recommendations from online information sources**, 5th International AAAI Conference on Weblogs and Social Media (ICWSM 2011), July 2011.
5. Maribeth Gandy, Brian Jones, Scott Robertson, Tiffany O'Quinn, Amos Johnson. "**Rapidly Prototyping Marker Based Tangible User Interfaces.**" HCI International, July 2009.
6. R. Hamid, S. Maddi, A. Johnson, A. Bobick, I. Essa, C. Isbell. **A Novel Sequence Representation for Unsupervised Analysis of Human Activities.**

7. Hamid, Maddi, Johnson, Bobick, Essa, Isbell, “**Discovery and Characterization of Activities from Event-Streams**” In proceedings of the 21st Conference on Uncertainty in Artificial Intelligence, Edinburgh, Scotland, July 2005.
8. Hamid, Johnson, Batta, Bobick, Isbell, Coleman, “**Detection and Explanation of Anomalous Activities: Representing Activities as Bags of Event n-Grams**” To in IEEE Conference on Computer Vision and Pattern Recognition, San Diego, CA, June 2005.
9. Johnson, Sun, Bobick, “**Using similarity scores from a small gallery to estimate recognition performance for larger galleries**” In IEEE International Workshop on Analysis and Modeling of Faces and Gestures held in conjunction with the International Conference on Computer Vision, Nice, France, October 2003.
10. Johnson, Sun, Bobick, “**Predicting large population data cumulative match characteristic performance from small population data**” In proceedings of the 4th International Conference on Audio- and Video Based Biometric Person Authentication, University of Surrey, Guildford, UK June 9-11, 2003.
11. Johnson, Bobick, “**Relationship between identification metrics: Expected Confusion and Area Under a ROC curve**” In Proceedings of IEEE International Conference on Pattern Recognition, Quebec, Canada, August 2002.
12. Bobick, Johnson, “**Gait recognition using static activity-specific parameters**” In Proceedings of IEEE Computer Vision and Pattern Recognition Conference, Kauai, Hawaii, December 2001.
13. Kwatra, Bobick, Johnson, “**Temporal integration of multiple silhouette-based body-part hypotheses**”, In Proceedings of IEEE Computer Vision and Pattern Recognition Conference, Kauai, Hawaii, December 2001.
14. Johnson, Bobick, “**A Multi-view Method for Gait Recognition Using Static Body Parameters**” In 3rd International Conference on Audio- and Video Based Biometric Person Authentication, pages 301-311, Halmstad, Sweden, June 2001.