

The University of Georgia

AI Newsletter

Institute for Artificial Intelligence
The University of Georgia
Athens, GA 30602-7415 U.S.A.

Fall 2012

Covington to Retire and Start New Career

The Institute's associate director, Michael Covington, will retire from UGA this coming June to pursue a second career as an industry consultant. Covington is the last of the original AI group formed in 1984; his colleagues at the time were Donald Nute and Terry Rankin.

"I hope you all think I'm too young to be doing this," Covington interjects. "I was once a very young Ph.D., and this is what happens thirty years later. The Georgia retirement plan was just too good to turn down."

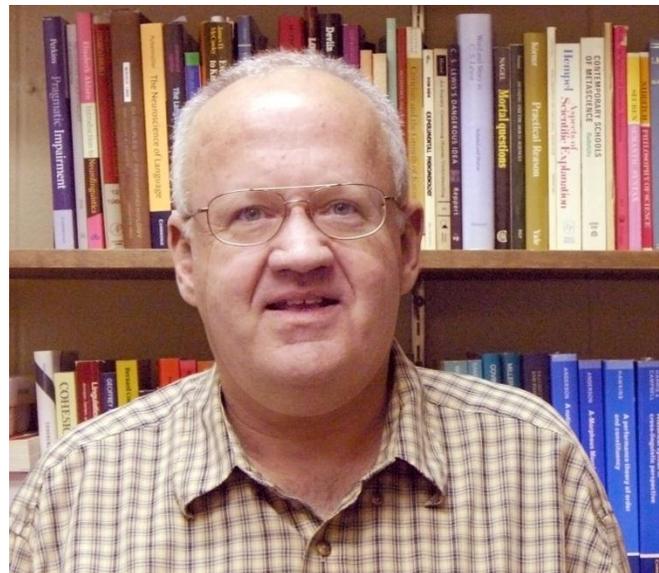
Covington will still have faculty privileges, with the title of Senior Research Scientist Emeritus, and plans to stay in touch with the Institute, maybe even returning part-time to do grant-funded research. Meanwhile, he will stay in

Athens and will be expanding Covington Innovations (www.covingtoninnovations.com), the consultancy that he has operated part-time for many years with UGA's blessing.

Covington's recent research has focused on applications of natural language processing, including detection of schizophrenia by speech analysis, tracking international conflicts in the news media, and financial decision making. "So the people who worked with me could fight a dreaded disease, prevent war, or forestall the next economic crisis," he explains. "Have I been useful or what?"

His earlier work has left its mark on the Institute's AI curriculum. Covington wrote the textbook for the natural language processing course and a large part of the textbook for the Prolog course. He directed the first AI master's thesis, that of Martin Volk in 1988. He also managed the Institute's computer network and its predecessors, from LMI Lisp Machines and Sun workstations to the current Windows 7 cluster, and established the Institute's microelectronics laboratory. A native of Valdosta, Georgia, he was co-valedictorian of UGA in 1977.

The Institute is recruiting a new Research Scientist to fill the opening left by Covington's departure. See Page 2.



News: IAI Seeks New Research Scientist

The Institute for Artificial Intelligence is taking applications (until February 28) for a non-tenure-track Assistant Research Scientist with a Ph.D. in an AI-related discipline and expertise in any major area of AI, including but not limited to robotics, data mining, computational linguistics, logic programming, multi-agent systems, computational intelligence, and machine learning. To learn more or to apply, visit <https://www.franklin.uga.edu/jobs/index.php?unit=20>. UGA is an EEO/AA institution.

News: Hollingsworth Joins IAI as Temporary Faculty



UGA alumnus and old friend Dr. Bill Hollingsworth has joined the Institute as a temporary faculty member, teaching Knowledge-Based Systems in Fall 2012 and hoping to do more teaching and research collaboration in the future. The recipient of a Gates Scholarship, Dr. Hollingsworth has a master's degree in linguistics and a doctorate in computer science from Cambridge University. For several years he has been pursuing a business venture, Skimcast (www.skimcast.com), which is a software system for automatically reading and summarizing English text. He brings much-needed knowledge of information extraction and text mining to the Institute.

Research Spotlight: Aronson and Wang Analyze Financial Texts

AI faculty member **Janine Aronson**, Professor of Management Information Systems in the Terry College of Business, and AI graduate student **Haosha Wang** are working on extracting sentiment from financial reports.

They are examining the Management Discussion & Analysis (MD&A) portions of 10-K filings (Annual Reports that must be filed by publicly traded corporations with the Securities and Exchange Commission, SEC). They have developed a prototype to analyze 10-Ks of several corporations. Important patterns that indicate sentiment are emerging as they analyze a set of successful and less than successful firms.

Ultimately, Aronson and Wang want to correlate the sentiment automatically discovered in each 10-K with financial measures indicating how well or how badly the firm is performing. For more information or to get involved, please contact jaronson@uga.edu.



News: Introducing the Faculty of Robotics

Robots are poised to change our lives, and we are ready. Led by AI faculty member **Prashant Doshi**, a group of faculty members from 3 colleges and 7 departments is coming together to establish the Faculty of Robotics at the University of Georgia. Reaching beyond the IAI and the Computer Science Department, this new group will serve as a hub for research that brings together interested University faculty and students from a variety of disciplines. Activities of the Faculty of Robotics will include regular meetings, themed seminars on robotics by external and UGA speakers, and outreach to the broader community.

Alumni News: Sabbaticals and Exciting Jobs

UGA alumnus **Dr. Mario Nakazawa** (Ph.D. 2005, originally enrolled in the MSAI program) is visiting the Institute on sabbatical from Berea College (Kentucky), where he is an associate professor of computer science. He is developing software that generates ballroom dance choreography using genetic algorithms and is working with MSAI student Adam Courson.

Recent MSAI graduates **Karthik Nadig** and **Jared Smythe** are working for Microsoft and IBM respectively. Karthik is on the Windows core team and is working on the Windows 8 runtime system, among other products – but that’s all he’s allowed to tell us. Jared is working on core algorithms for IBM Watson, the system that played Jeopardy last year and is being developed into a multi-purpose natural language understanding system. Specifically, he works on parsing using McCord’s Slot Grammar formalism.

Alumna **Astrid Glende** (MSAI, 2004) recently stopped by for a visit. She has completed five years of fascinating but hard work at Electronic Arts in Florida, implementing intelligent behavior in games, and is contemplating further study. (She also took the picture of Dr. Covington on page 1.)

Letter from the Director

Welcome to Michael’s next to last newsletter! As you saw on page 1, he is retiring from UGA after a long and distinguished career, having spent the vast majority of his time with the Institute (and Center before that, Program before that, and just a research group to start). After a long campaign with the Dean’s office, we were finally granted permission to open a search for his replacement; well, a search to find someone to take over his soon-to-be-vacant position. Of course, replacing Michael and all he does for the Institute (and has done over the years) will be extremely difficult. We’ve posted the position in a number of mainstream outlets including AAAI and CRA, and made it available to the monster job search engines.



Although only a few candidates have applied thus far, we hope applications will start rolling in soon. The plan is to have interview candidates identified by early next year, manage some interviews during the spring, and, hopefully, have our new Assistant Research Scientist show up for work in August, 2013. Campaigning for the position with the Dean, preparing the advertisement with all its approvals, and targeting job sources have been the key activities around the Institute since July. And no, we haven’t forgotten about the possible lecturers for the Institute. That campaign is still underway but the outcome does not seem to be too promising; keep your fingers crossed. As an alternative solution to meet an important and pressing need for an additional graduate level course this fall, the Dean did give us permission to hire Bill Hollingsworth to teach the Knowledge Based Systems class. See the section on him for more details.

On another note, in addition to the new robotics initiative started by Dr. Doshi, the robotics class has moved from autonomous mobile robots rolling around on the floor to quad-copters flying through the hallways. We have several Parrot AR.Drone quad-copters that are typically controlled remotely by a person via their iPad or iPhone (FreeFlight app). A Java SDK is available for controlling the quad-copters from your laptop. We’re in the process of programming autonomous behaviors as I write this.

Don’t forget, feel free to stop by and/or email us just to let us know how things are going with you. We are always keen to hear about your latest activities. Keep in touch!

— Don Potter, Director

Recent Theses

Karthik Nadig, *Comparison of Individual, Combined, and Series Air Temperature and Dew Point Temperature Models* (directed by Don Potter)

Siva Venkadesh Iyappan Latha, *Improving Air Temperature and Dew Point Temperature Prediction Accuracy of Artificial Neural Networks* (directed by Don Potter)

Allen Taylor III, *HQ-DoG: Hierarchical Q-Learning in Domination Games* (directed by Don Potter)

Ganesh Bonde, *Extracting the Best Features from Multi-Company Stock Data to Improve the Stock Price Prediction* (directed by Khaled Rasheed)

Charles Hollingsworth, *Syntactic Stylometry: Using Sentence Structure for Authorship Attribution* (directed by Michael A. Covington)

Shayi Zhang, *LingCues – A Linguistic Cues Software Tool for Research in Text Based Automatic Deception Detection* (directed by Michael A. Covington)

David Robinson, *Finding Patient-Oriented Evidence in PubMed Abstracts* (directed by Michael A. Covington)

For a copy of any thesis, e-mail shbrooks@uga.edu.

Selected Publications and Presentations

Bolanos, D.; Cole, R.A.; Ward, W. H.; Tindal, G. A.; and Schwanenflugel, P.J. (in press). Automatic assessment of expressive oral reading. *Speech Communication*.

Covington, Michael A.; Lunden, S. L. Anya; Cristofaro, Sarah; Johnson, Stephanie; Ramsay, Claire; Broussard, Beth; Zhang, Shayi; Bailey, C. Thomas; Fogarty, Robert; and Compton, Michael T. (in press) Phonetic measurement of reduced facial movement among young adults with first-episode schizophrenia-spectrum disorders. *Schizophrenia Research*.

Covington, Michael A. Medical artificial intelligence at the University of Georgia. Health Journalism 2012 (AHCJ 2012), Atlanta. (Presentation, not published.)

Perdisci, Roberto, and U, ManChon. VAMO: Towards a fully automated malware clustering validity analysis. Proceedings, 28th Annual Computer Security Applications Conference, ACSAC 2012.

How to Sponsor Research

As an industrial partner or associate of the IAI, you can be involved in our research four ways: **collaboration** (working with us, especially with graduate students); **sponsored research** (contracting with the University to do research for your company); **donations** (which are tax-deductible); and **consulting** (hiring faculty and graduate students to work for you as independent contractors).

We also invite all industrial partners and associates to **come and visit us** and speak with groups of students. This is your “inside track” to recruiting.



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