



*"Developing Outstanding Ideas and Individuals... One at a time."*

# ARG Alumni Newsletter Summer '06

## 1. Greetings

Hello again to all ARG Alumni. We hope your summer was a productive one...both for your careers and your families. Over the several months there has been a flurry of activity as several of our ARG members have graduated and moved on. We know they'll stay as a part of the ARG but now from a distance. The summer has been very busy with writing and, for Prof. Alleyne, many theses. We hope you'll be seeing the results of these theses in print someday soon. You can always check the individual student web pages in the Alumni section to see some of the work that was turned in for the various theses. For up to date info about what's happening in the lab, you can always check out the "What's New" section leading off the ARG website at <http://mr-robot.me.uiuc.edu>.

## 2. Who's New?

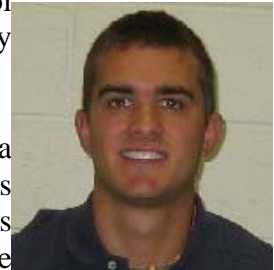
Due to the large number of departures in the ARG over this Spring/Summer, there were several openings in the group. This led to many new faces here in the ARG. The experience that left with the previous generation of ARG members was extensive, and will be missed. However, to paraphrase Al Davis of the Raiders, "We don't rebuild, we reload."

We were fortunate to have some top flight people join the lab this fall. Tom McKinley



comes to us from Purdue University, where he gained a B.S. and M.S. Tom built a successful career at Cummins, Inc. in Indiana. In his last

assignment at Cummins, Tom led the heavy-duty/medium-duty Aftertreatment team for EPA-2010, providing an additional five-fold reduction in NOx emissions. Tom is currently working on the Thermosys modeling environment and will be doing his Ph.D. on advanced control for thermal energy management.



Brian Helfrich is also a Purdue grad that joined us over the Summer. He has a B.S. undergraduate

degree in mechanical Engineering with a minor in Electrical Engineering. He is working in the NanoCEMMS environment using Iterative Learning Control to improve the tracking performance of Parallel Kinematic Machines.



Scott Manwaring graduated from Notre Dame last year and joined ARG in August. His research area is Fluid

Power Systems and he will be working in the new National Science Foundation (NSF)

Engineering Research Center (ERC) on Compact and Effective Fluid Power Systems. His research interest will focus on the use of dynamic scaling in the dynamic design of fluid power systems. He will also be working on the application of this topic to miniature Fluid Power systems to support our testbed activity at UIUC.

Serena “Semper Fi!” Tyson comes to us from many parts of the world but most recently the United States Naval Academy. There she received her B.S. degree in Weapons and Systems Engineering. Previous



undergraduate research experience with control systems led her to pursue her M.S. degree at UIUC before heading off to join the Marine Corps in two years time. Serena will also be working within the NSF ERC. Her M.S. research will focus on the design and evaluation of our UIUC testbed suite that focuses on adaptive orthoses and prostheses for gait stability/enhancement.



Like Scott Manwaring, Neera Jain is originally from Illinois but went out of state for her undergraduate degree. She attended a small technical institute in the northeast called the Massachusetts Institute of

Technology. However, she came back to her home state to see what graduate school would have to offer her. She will be working on Thermosys system development with Tom. In a curious “small world” scenario, Neera had actually interned out at Cummins in Columbus IN for the summer before her senior year.

The final addition to the ARG for the Fall 2006 semester comes to us from Shanghai Jiao Tong University (SJTU) in China. Bin Li graduated a couple of years ago but spent time honing his research skills in the Body Manufacturing Center at SJTU. He will be the third person working in the general area of Thermosys development. There’s a lot of development that’s been done over the years and the team of 3 new folks will be doing the best to uphold the excellent tradition set forth by the previous ARG Thermosys members.



### 3. Transitions



We had several departures, as mentioned before. The new Prof. Bryan Rasmussen left this Spring to take up his post at Texas A&M university. Here we see a couple shots of Bryan’s graduation day. That’s his dad in the

hooding ceremony. That was kinda cool. Lotsa folks were happy to see him get recognized. He's already off to a fast start at TAMU and you can check out his activities at:

<http://www1.mengr.tamu.edu/TFCL/brasmussen.htm>

Another transition was Dr. Paul Kawka who successfully defended his dissertation and deposited his thesis this August. Paul is off to Proctor and Gamble in Cincinnati work in their Advanced Manufacturing group. He will also be missed dearly after 4 years with the ARG.

Mike Keir transitioned from being an M.S. student to being an engineer with Honeywell. Since Mike is from Minneapolis, headquarters of Honeywell, this seemed like a great fit. However, he's initially stationed in Arizona with their Aerospace division. A slight difference in climate from Minneapolis. Mike's fellow Thermosys partner, Brian Eldredge, moved down to Houston TX to take up a position with Schlumberger Inc., one of the leaders in oil exploration technologies. We're hoping that he can rise through the ranks sufficiently quickly so as to get us discount gas from some of Schlumberger's clients. Benjamin Morgan also moved on from the ARG to join Rolls Royce in Indianapolis IN. He will be working on control systems for turbine engines.

Finally, one near transition was avoided. Kira Barton decided to stay for her Ph.D. after completion of her M.S. degree. She will continue to work in the area of ILC applied to manufacturing systems that she started for her M.S. thesis.

#### 4. Accomplishments

There have been some notable accomplishments that have come out of the ARG since last I wrote. Some of you may

have caught up with these if you have been monitoring the "What's New" section.

- Prof. Alleyne was part of a team that won the NSF Engineering Research Center that was mentioned earlier. 125 multi-university teams started the ~2 year competition with 5 eventually being awarded full ERC's.
- Brian Helfrich was awarded an MIE Outstanding Student Fellowship Award for 2006-2007.
- Tom McKinley was awarded an M&IE Excellence Fellowship prior to his enrollment at UIUC.
- Kira Barton was awarded a Eugene and Lina Abraham Fellowship by the Mechanical Science and Engineering Department.

If you know any of the awardees mentioned above, feel free to drop them an e-mail in the lab and say congrats. Also, you can check our ARG homepage regularly to find out whether any new news has come through.

#### 5. Alumni Focus.

The previous 2 summer newsletters have included a section where we catch up with someone who was part of the ARG in a former life. Here we catch up with Wilbur



Langson who received his M.S. degree in 1997.

In December 1994, Wilbur graduated with a Bachelor's degree in Mechanical Engineering at the University of Cape Town (in South Africa). In August 1995, he took up a USAID

sponsored scholarship to go for a Master's in Mechanical Engineering at the University of Illinois. He chose to major in Control Systems because he felt that it provided rewarding applications of mathematical results. In July 1997, he completed my MS and returned to South Africa. Between August 1997 and December 1998, he worked as a R&D Engineer at Swartklip Products, an armaments manufacturer. At Swartklip, Wilbur worked on the development of interior and exterior ballistic models and the integration of these models into the mechanical design process.

*"I found that the system dynamics, simulation, and modelling aspects of my MS in control were extremely valuable tools." W.L.*

At the end of 1998, he decided to return to academia and took up a joint position in the Chemical and Electrical Engineering Departments at the University of Cape Town (UCT). At UCT, Wilbur lectured courses in control systems and conducted research in the area of Model Predictive Control. In January 2001, he joined the Hi-Spec division of Honeywell as a Control Engineer working on Model Predictive Control design processes. The typical cycle involves identifying client requirements, performing step tests for model identification, specifying and designing the Predictive Control scheme, off-line testing via simulation, and finally, implementation and commissioning at the client site.

Around 2002, Wilbur became interested in the Mathematics of Financial Markets and the synergy's of these with Mathematical Control Theory. To test the waters, he took up a part-time Honours degree in Financial Mathematics at the University of Pretoria . In August 2003, Wilbur joined Rand Merchant Bank as a Quantitative Analyst. Currently, he head up the Equities Quantitative Research group. His group conducts applied and pure research in the area of Financial Derivatives. While this may seem like quite a career

change, his day to day work draws from areas such as Fourier Transforms, Kalman Filtering, Stochastic Dynamic Programming, Time Series Analysis, etc. Yes, control system mathematics features everywhere! As if that were not enough, he's found that Matlab has become the one of the most widely used programming environments for Financial Model development.

While Wilbur's career path may seem colorful and somewhat peripatetic, he thinks it serves to show the immense career opportunities afforded to someone with a good post-graduate background in Control and Dynamic Systems.

On a personal note, Wilbur married Amber in January 2001. They met and courted in Cape Town but moved to Johannesburg about a week after their wedding (sorry, no pictures sent). His super-star, Adam James Langson was born on 21 January 2005. Wilbur can't wait till Adam is a bit more grown up so that he can help daddy with his other hobby, woodwork. If you'd like pictures of Adam...please bug Wilbur ☺

## **6. Announcements-Catching up.**

A couple of quick ARG announcements. We'll start with babies. What baby announcement parade would be complete without including Byran and Holly Rasmussen. Yep, they're expecting another one. I've been told its another girl. Bryan should probably get a dog....a boy dog. That way he'll have some male companionship in the household. We'll wait for the pictures to come. Additionally, Benjamin Morgan has found out that he will also be having a girl some time later on this year. The ARG gender preference seems to be more than a statistical anomaly. So many girls to be made whilst parents were a member of ARG seems to be more than coincidence. It almost seems

as if we could perform a service within ARG for couples wanting to have a girl.

Kevin Smith (M.S. 2003) also had a girl. However, ARG takes no credit for this gender since Kevin was long gone from ARG by the time this one (his second!) came along.



That's all for now. Keep the notes, pictures, and announcements coming. We love to hear what you're up to.

Other incidental news. Rong Zhang is currently pursuing an M.B.A. at Stanford University's Business School. He made the decision to further his, already impressive, resume with tools that will allow him to pursue some of the future interests that he has. Rajat Shah (M.S. 2003) has also decided to go the M.B.A. route and enrolled in an evening program at the University of Michigan. All ARGers, stay in touch with them both; you may call them up for a job someday 😊.

Finally, Professor Alleyne isn't all work and no play. This Spring, he found time to get over to Agra, India. He was an organizer for the inaugural National Academies of Engineering bi-lateral Frontiers of Engineering symposium with India. Apart from the jet-lag, a trip well worth taking.