



RLE

undercurrents

Volume 10, Number 1 • Spring 1998

A Newsletter for the RLE Community at MIT

Behind the Scenes in the Advanced Television and Signal Processing Group



In recognition of its pioneering role in the digital television revolution, the Digital High-Definition Television Grand Alliance received the 1997 Primetime Engineering Emmy Award for developing the technology upon which the new U.S. standard for over-the-air digital television broadcasting is based. As one of the members of the Grand Alliance research consortium, MIT was presented an Emmy. Professor Jae S. Lim and RLE's Advanced Television and Signal Processing group represented MIT.

Shown with the Emmy are (from left): Research Assistants David M. Baylon, Wade Wan, and Eric C. Reed, Administrative Assistant Cindy LeBlanc, Professor Jae S. Lim, graduate student Ruben E. Galarza, and Research Assistant Raynard O. Hinds.

Administrative Assistant **Cindy LeBlanc** is a graduate of Saugus High School and Marion Court Junior College in Swampscott, MA. She worked for the Social Security Administration for ten years before coming to MIT. Cindy started working for Professor Jae S. Lim on January 3, 1988. "Wow – 10 years!" Cindy exclaims, "Aren't I supposed to get a pin or something?!"

Cindy enjoys the interaction with students in the group and establishes friendships that sometimes continue after the students graduate. In June 1996, she hosted a wedding and reception in her Saugus backyard for a former student in the group. The parents of both the bride and groom were originally from Hong Kong, and Cindy says that, "It was interesting to have a part in some of the formalities that take place in a Chinese wedding such as the ceremonial 'tea serving.'"

Working with the computer to prepare slide presentations for Professor Lim is also fun for Cindy. She remarks that, "Technology has come a long way since I first started. A few years ago, I had to do a lot of cutting and pasting by hand. Now, I have the use of a scanner and am able to incorporate photographs and graphics into slide presentations in a much more efficient manner."

"I also enjoy the world wide web. It is so much easier now to get information for Professor Lim about a conference, proposal announcement, or anything else he may want to know about. It makes a support staffer's life much easier!"

Cindy's eleven-year-old daughter Jillian attends Saugus Belmonte Middle School. Both Cindy and Jillian are members of the MIT

Figure Skating Club. At the annual MIT exhibition this spring, Jillian performed a solo and a pairs number with her partner, Mickey Barry, of Draper Laboratory.

While she does not have time for many hobbies, Cindy enjoys sewing. "I took up sewing when Jillian started skating so I could save some money by making her dresses and costumes myself. For a skater at her level, a competition dress can range from \$175-\$400. I have made dresses for a number of other skaters but have had to stop taking orders because I was getting so far behind schedule. It takes me a couple of weeks just to make one dress." In addition to sewing, Cindy likes to garden in her yard. "I usually plant more flowers than vegetables. I've been trying to plant more perennials than annuals, so I can just keep adding every year instead of starting all over each spring."

Cindy says, "I really like to take vacations, especially in warm tropical places. So far, I've only gone outside the continental U.S. to travel to Hawaii, Mexico, and the Caribbean Islands. Some day I would like to take a trip to Europe."

Research Assistant **David M. Baylon**, originally from San Diego, CA, earned a BS degree in electrical engineering from the University of California at San Diego. David came to MIT in 1988 and later joined the ATSP group in Fall 1989. He received an MS in electrical engineering and computer science in 1990; his master's thesis was on video compression and noise reduction.

In 1992, David took a break from his graduate studies and spent a year and a half in the Philippines to "teach, do some consulting work, learn about the culture, and get married." David taught courses in electrical engineering at the University of the Philippines in Manila, where he found teaching both challenging and rewarding. In the Philippines, David and his wife Leah, whom he had met in Cambridge while she was pursuing her graduate studies in education, enjoyed sightseeing on the weekends. "The Philippines is very beautiful and very different," David says.

David's current research is concerned with video compression for prerecorded sources such as film where information about the entire source can be used to help improve the overall quality of the compressed video.

David enjoys playing video games, tennis, and bowling. Leah and he enjoy watching old movies and eating Toscanini's ice cream.

Ruben E. Galarza is a first-year graduate student in electrical engineering and computer science. He is working with Professor Lim in the ATSP group to enhance speech signals. A native of Puerto Rico, Ruben earned a B.S. in electrical engineering from the University of Puerto Rico in 1997. He became interested in signal processing as an undergraduate and was turned on to speech processing in his final year by a friend who introduced him to some problems in speech recognition and enhancement.

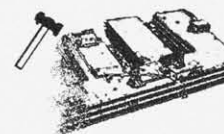
Ruben is now working to improve an existing speech enhancement system designed to remove as much noise as possible from speech signals while retaining intelligibility; normally, removing noise sacrifices intelligibility. He hopes to make the system more computationally efficient and to improve the overall quality of output.

Ruben's hobbies include listening to music and playing the electric bass: he prefers alternative rock and classical music. He also enjoys Spanish music and is taking Salsa dance lessons.

Raynard O. Hinds is a native of Orlando, FL. He has been working with Professor Lim since September 1989, earning his master's degree in electrical engineering and computer science in 1995. Ray has enjoyed electronics and computers since the seventh grade, when he ordered an electronic project kit from a mail order catalog. Ray is now developing new methods of coding video for real-time video communication over the internet.

Ray was married in November 1997 to Erin Hinds, who recently graduated from Boston

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Safety: Building 20 Comes Down!

The good folks at Facilities Maintenance and Industrial Hygiene are taking steps to ensure the continued health and safety of Building 36 occupants for the duration of the destruction and mayhem next door. For more information and to report problems, contact RLE Facilities and Safety Officer Gerry Power at x3-2541.

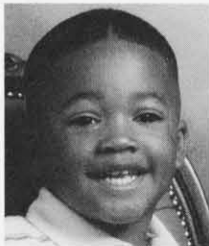
Welcome to our New RLE Staff



Ahsaki S. Hardy, who began working for RLE on September 16, 1996, as a student assistant, became a permanent part-time office assistant in the RLE Headquarters Communications group. Saki maintains the journal collection in the

Document Room including the table of contents service, handles the Building E19 route each day, and takes care of many other duties. Saki graduated from Cambridge Rindge and Latin High School, where she played on the basketball team. A junior at UMass Boston, Saki is studying political science and English. She writes poetry and has submitted poems to UMass' book of creative writing. Saki volunteers during school vacations at Night Stop, a Rindge and Latin program to keep children 11-18 years off the streets. She specializes with working with at-risk girls.

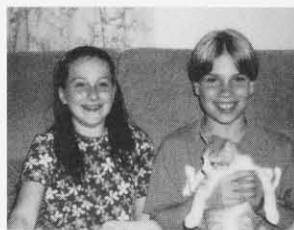
Saki has a five-year-old son, Darnell Henderson, Jr., an active pre-schooler who likes playing t-ball and swimming. Last fall, under the direction of the head of the Probation Department, Saki interned as a junior probation officer at the Roxbury District Court. When she graduates in June 1999, Saki plans to seek employment as a probation officer and eventually to attend law school.



Albert T. McGurl began working as Maintenance Mechanic B in RLE Headquarters on May 4, 1998. Before coming to RLE, Al worked for Harrington Contracting for three and a half years. Al will be working for Gerry Power, RLE Facilities

and Safety Officer, performing general maintenance tasks and carpentry. One of his tasks will be to relocate the RLE facilities shop from Building 20 to its new home in Building 36.

Residents of Wakefield, Al and his wife Darlene McGurl, an administrative assistant in MIT's Biology Department,



are the parents of two children, Scot, 12, and Kaitlyn, 10.

Al is learning to play the guitar and enjoys coaching Pop Warner football for 11-12 year olds.

When not helping out his children with their interests, Al likes to work around his house.



Editorial Assistant **Jonah Sacks** began working in RLE's Headquarters Communication group on December 8, 1997, just in time to assist Communications Officer Barbara Passero with the Fall 1997 issue of *undercurrents*.

Jonah also contributes to production of the *RLE Progress Report*, *currents*, and other RLE publications in addition to assisting in the management of the RLE Document Room. Before coming to RLE, Jonah had been an administrative assistant for a nonprofit lending institution and did a brief stint at MIT's Sloan School.

Jonah grew up in Belmont, Massachusetts, and opted to stay in town for his college years, earning an undergraduate degree in philosophy from Harvard University. He wrote poetry and stories during and after college but now focuses his creative energy on songwriting and pursuing an after-hours education in the local music scene.

A musician from the start, Jonah began playing cello at the age of five, performing in various youth orchestras and string quartets throughout the years. At age 15, he took up guitar and began the transition from classical to rock music. He plays both instruments with the Steve Walther Orchestra and is forming his own rock trio, Drain Stopper.



RLE Support Staff Honored

On April 21, RLE honored our support staff at a luncheon in the Grier Room. Top row: Diane Hagopian, Arlene Wint, Cary Rosko, Linda Young, Nora Luongo, Vera Sayzew, Carol Arlington, Cindy Lewis, Beth Chung, and Jonah Sacks. Center row: Cindy Kopf, Janice Balzer, Susan Chafe, Denise Rosetti, Dorothy Fleischer, Maureen Howard, Donna Gale, Ahsaki Hardy, and Kathy Nici. Front row: Olga Arnold, Janice Zaganjori, Olivia Rosetti, Barbara Stuart, Maxine Samuels, and Pat Varley.

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College with a degree in early childhood education. He enjoys jogging around the Charles River.

Research Assistant **Eric C. Reed** has been a member of the ATSP group since September 1994. He earned a bachelor's degree from Drexel University in Philadelphia and a master's degree in electrical engineering and computer science from MIT in 1996. Eric is interested in developing bit allocation strategies to transmit video signals in mobile environments at very low bit rates. He is currently working on the application of compressing underwater images taken by unmanned underwater vehicles so that the images can be transmitted acoustically to the "mothership" on the surface. Eric spent his last two summers at Digital Equipment Corporation's Cambridge Research Laboratory working in the Video and Image Processing research group.

A native of Washington Township, NJ, Eric likes to return home to visit family and friends. He enjoys Boston and its night life and likes walking and jogging around the Charles River.

Research Assistant **Wade Wan** is a native of Paramus, NJ, and earned a BS in biomedical and electrical engineering from Johns Hopkins University in 1995. When he started his graduate studies at MIT, Wade was jointly enrolled in EECS and Harvard-MIT Division of Health Sciences and Technology (HST). Wade worked with Professor Elazer Edelman, studying methods to quantify drugs in vascular tissue. After earning his MS degree in February 1998, Wade decided to switch from biomedical to electrical engineering research and joined Professor Lim's ATSP group.

At ATSP, Wade studies signal processing for advanced television systems. The FCC has recently approved a new standard for high-definition television (HDTV) to replace the current television standard. Future improvements in compression and transmission will allow higher resolution video formats than those in the current HDTV standard. Wade is developing methods to transmit and receive these video formats.

Wade enjoys watching sports and movies and playing basketball.

Short WWWWWWWWWWWWWWWWWaves

Dr. **Francesca Bombarda** and her husband Joseph Snipes had a baby boy, Enrico Scott Snipes, on January 19, 1998. Dr. Bombarda is a visiting scientist with Professor Bruno Coppi in RLE's Plasma Physics group.

Francis Doughty, administrative assistant to Professor Donald E. Troxel, sang and played guitar on October 14, 1997, at Kresge Auditorium as part of MIT's Artists Behind the Desk series.

Research Scientist **James G. Goodberlet** placed 240th (out of about 11,000) in the Boston Marathon on April 20, 1998. James ran the 26 miles in just over 2 hours and 43 minutes. He works in the Quantum-Effect Devices group for Professor Henry I. Smith.

Professor **Qing Hu**, principal investigator in RLE's Optics and Devices group, and his wife Jennifer E. Looper announce the birth of their daughter, Allegra Looper Hu, on December 27, 1997.

Derek, a baby boy, was born on January 20, 1998, to Professor **Leslie A. Kolodziejski** and her husband Kevin. Professor Kolodziejski is a principal investigator in RLE's Materials and Fabrication group.

Dr. **Stefano Migliuolo**, research scientist in RLE's Plasma Physics group, and his wife Sarah Heath are the parents of a boy, Sebastian Heath Migliuolo, born on September 12, 1997. Sebastian has an older sister, Adriana, who was born in March 1996.

Wainwright (Greg) W. Wint, 13, son of **Arlene E. Wint**, administrative assistant in RLE's Speech Communication group, and her husband Linden, was one of five Somerville schoolchildren who were awarded \$100 savings bonds for essays submitted to the Paul Duhamel citywide essay contest on the topic of keeping children in school. The awards were presented at the Somerville dropout prevention conference on October 25th. Greg's essay, "Children of America are its Future," along with the four other essays, were published in the *Somerville Journal* on October 30, 1997. Greg is in the 8th grade at the Lincoln Park Community School.



RLE undercurrents is a publication of the Research Laboratory of Electronics for the RLE community at MIT.

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Our special thanks to all contributors and to Dorothy A. Fleischer and David W. Foss.

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undercurrents is printed on recycled paper.