

SO & HOME

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IN THE KITCHEN WITH
M.T. MEDIA LAB

Cooking With Cache

By WILLIAM L. HAMILTON

MAYBE Mr. Java is just shy. But when asked to produce a cup of coffee for a stranger, he sat as still as a child frozen on stage.

"I don't understand," said Kristin Hall, a project coordinator at the Media Laboratory at the Massachusetts Institute of Technology in Cambridge, Mass., watching the empty cup. It was a comment heard frequently during a visit to the 14-year-old silver-tiled building designed by I. M. Pei. As the Media Lab's director, Nicholas Negroponte, is fond of saying, it was founded to "invent the future."

Mr. Java is an Acortio 2000s automatic espresso machine wired to a personal computer — a kind of HAL for latte. When he works, he is also the first piece created by Counter Intelligence, a quirky five-year research program begun in October to invent a technological future

for the kitchen at home.

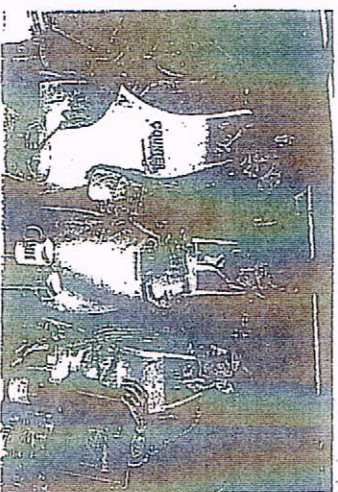
"The kitchen is the heart of the home hub of the family," said Michael Haw, associate professor of media technology and the principal investigator, as research called. "We're not trying to invent the kitchen; please don't say that."

Mr. Hawley, a round-faced, red-nail wearing a shooting jacket with a quill, is a computer scientist who is preparing for the Van Cliburn piano competition. He is the architect of the first digital Shakespeare. He helped George Lucas with the supercomputered cinema of "Star Wars."

Now, he wants to work in a kitchen. "It's where you have the most complex interactions and the most complex schedule management and probably the use of new technologies to help you manage

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HOMEMADE? Joseph Kaye, left, Michael Hawley and Judith Donath of Counter Intelligence make fudge the hard-drive way. A counter-top computer with sensors and a scale prompts the researcher-chefs.



By Bill Hamilton for The New York Times

At the M.I.T. Media Lab, Cooking With Cache

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that stuff," Mr. Hawley said.

The kitchen is already wired, though not with the caches powerful computers use to keep information handy, Andrew Lippman, the associate director of the Media Lab, said. "Right now, your toaster doesn't talk to your television set, and your refrigerator doesn't talk to your stove, and none of them talk to the store and tell you to get milk on your way home. It's an obvious place screaming out for connectivity."

Mr. Java is the advance guard of Phase 1: an army of smart domestic devices being explored in prototype in a series of work spaces at the Media Lab that look like messy children's rooms separated by doors with security touch pads.

Equipped with a tag reader beneath his coffee spoon, Mr. Java takes the order encoded in a plastic tag, glued to the bottom of a coffee mug. He supplies both a drink and, through a computer monitor, Internet-based news, music, stock quotes or weather. He is a virtual coffeehouse with genuine foam.

Counter Intelligence has built a bagel-cutting laser that can also engrave cooking instructions on food. When Martha Stewart visited, it etched her picture on an eggplant.

"She's probably trying to grow the seeds," said Joseph Kaye, an M.I.T. undergraduate who helped develop the idea for the study of kitchens.

There is also a digital "nose," originally developed for drug enforcement agencies to find cocaine in suitcases, that will now suggest spicing for food, a talking oven mitt, wired with sensors and a voice microchip, that can tell the baker when the bread is ready, and an electronic tablecloth, embroidered with conductive thread, that could moderate a family discussion or invite an on-line guest as a fourth for dinner.

"My dream tablecloth would actually move the things on the table," Dr. Lippman said, describing a scene worthy of "The Jetsons." "You throw the silver down on it, and it sets the table." Dr. Lippman, who has a mad-looking cartoon-puppet brush mustache and a demeanor to match, was wearing a small Barman pin on his sweater. "I collect pins

from guests," he said. Time Warner had been through that day.

Because the Media Lab's faculty and students are a virtual aristocracy of the digerati, and because the subject of kitchens is food, which can be stubbornly analog, as project members described it, there is a strong smell of blind men barbequing an elephant. Counter Intelligence investigators interviewed local food shops and chefs, who were asked to name useful tools and appliances.

"And we all spoke with our mouths," said Mr. Hawley, the principal investigator.

Mr. Kaye, the student, has lately been trying to train a glass counter top to assemble the ingredients for making fudge by reading electronic tags on jars of mini-marshmallows and chocolate chips, then coordinating their quantities with a recipe on a computer and directing a microwave oven to cook it.

"The floating chip is programmed to be vanilla," the screen explained. On a visit last Thursday, the intelligent counter seemed to be on brief sabbatical with Mr. Java. Fudge, like the future, remained only a prospect. But at its conceptual best, Mr. Kaye's dessert recipe is an exercise in inventory management. With product bar codes and appliances that were cable-connected and continuously on line, kitchens could shop for and stock their own food.

In fact, the future has a habit of showing up early. This month in England, Electrolux introduced what it calls the first Internet-connected refrigerator, which can reorder groceries through a bar-code scanner built into the door.

With its lovable low technologies like mixing bowls, its nostalgic connectivity to memory and its unscientific satisfactions like hanging out and getting fed, does the kitchen need the future?

"With the living room disappearing, the kitchen is changing its focus, returning to a more social, community-oriented space," said Judith Donath, an assistant professor of media arts and sciences and a principal investigator. Ms. Donath is helping develop the Visiphone, a prototype of an audiovisual environment that would allow extended families or groups of friends to convene in a kitchen electronically.

"I'm interested in communications which are ostensibly about nothing in particular," said Ms. Donath, who is confident that the more sophisticated technologies now emerging will remove the raw, surveillance quality of today's video

conferences and speaker telephones and allow conversations as casual as dropping in for coffee.

If Counter Intelligence sometimes seems less than serious, Mr. Hawley is quick to remind the visitor that he wants to make the future of the kitchen fun. Like many educators, he contends that entertainment can teach.

"We're eating more and more processed food, we're spending less and less time making it, and it gets consumed with what I would call a minimum of fun," Mr. Hawley said. "One thing we're after specifically is ways for kids to have a lot more fun in the kitchen."

Counter Intelligence doesn't mean to leave them licking the spoon. Imagine instead ethnic foods, with genetic bar coding, that speak with foreign accents as the kitchen scans and prepares them. Welcoming children into the kitchen is more than instructive fun. They are the next generation of consumers, and they are especially at home with technology, which they help sell to their parents.

"Technologies don't just trickle down," said Dr. Lippman, the Media Lab's associate director. "They bubble up now from kids. One of the ways that you might find electronic tablecloths appearing in the world is



Hans Bannister

with the American Girl Collection," a popular doll company. A child playing with the doll's tablecloth would introduce its technology to her mother, who might then buy a full-scale version. "Maybe you break out this stuff from the bottom up, as a toy," Dr. Lippman said.

Counter Intelligence is not developing anything that is more than 15 years away, in terms of technology. Most of it, including the talking oven mitt, is inexpensive enough to mass-produce now, said Ted Selker, a visiting professor and I.B.M. fellow, who developed the mitt.

REVOLUTION or not, Media Lab inventions could easily be the next wave of kitchen products for everyone from A&T to Kraft Foods, both Counter Intelligence sponsors. With sales unconformably slow because of a lack of innovation and the buyer's basic reluctance to replace something that still works, the appliance industry is looking for new entry to computer electronics and its market for frequent up-grades. An alliance between them in the kitchen, like the one Counter Intelligence proposes, could be difficult to resist. Though the Media Lab doesn't manufacture its inventions, it

owns any patents sought by its researchers based on their work. Sponsors have a two-year exclusive right to license the patents.

Mr. Hawley, with the wondrous expression of a boy with a frog, discussed what Media Lab believes is the most radical — and most logical — edge of the domestic universes.

"In time, kitchens and bathrooms will monitor the food we eat so closely that health care will disappear," he said. "We will move from a world in which the doctor gets a pipette of data every blue moon to the world in which the body is on-line. Your kitchen will be the finger on your pulse."

The Media Lab has developed a thermometer to swallow, recording data as it passes through the body. It is working on a similar DNA analyzer. Mr. Hawley, a bachelor who rarely uses his kitchen, dismissed a future that produces only a laser bagel-cutter, which, with an academic scowl, he compared to the electric knife. But he knows enough to play to the crowd. "People would have thought a bread-making machine was pure science fiction 100 years ago," he said.

Mr. Hawley smiled. "But they're kind of nice," he said. "People love them."

Photographs by Evan Richman for The New York Times

HOT WIRED An oven mitt developed by Ted Selker, above, has temperature sensors. A microprocessor with a voice chip, right, announces when a dish is ready. Top right, the Jetsons make breakfast.

