

Welcome to TimesPeople  
What's this?

TimesPeople Lets You Share and Discover the Best of NY...

10:10 AM

Get Started  No, thanks

HOME PAGE TODAY'S PAPER VIDEO MOST POPULAR TIMES TOPICS

Get Home Delivery Log In Register Now

The New York Times

Jobs

Search All NYTimes.com

Go 

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION ARTS STYLE TRAVEL JOBS REAL ESTATE AUTOS

FIND A JOB POST YOUR RESUME JOB SEEKER LOGIN CAREER ADVICE EMPLOYER CENTRAL

Reconnect with free weekends.  
Redeem at 860 Starwood Hotels. No limits. No blackouts.

Register Now



FRESH STARTS

## In Simulation Work, the Demand Is Real



Eric Schultz for The New York Times

Bill Waite, left, chairman of AEGis Technologies, a simulation company, with Danny Thomas, senior research scientist, at its Huntsville, Ala., office.

By CONRAD DE AENNLE  
Published: June 13, 2009

AS employment headlines go from grim to grimmer, it's appropriate that one job category with expanding demand involves helping people avoid reality. Designers of computer simulations are sought in many fields to help understand complex, multifaceted phenomena that are too expensive or perilous to study in real life.

Simulations are used to gauge the impact that new rivals in the market may have on a company's sales — or to help a manufacturer devise the cheapest, fastest means of delivering products.

To reduce costs measured in lives, not dollars, simulations examine responses in security threat situations, for instance, or how various factors affect aircraft or rocket-engine performance.

"The fundamental nature of modeling and simulation is to represent something that's in the world out there in a way that you can manipulate and think about without risk and at low cost," said Bill Waite, chairman of the AEGis Technologies Group, a Huntsville, Ala., [company](#) that creates simulations for various military and civilian applications.

"It almost doesn't matter what kind of world you care about; you can use simulations," Mr. Waite explained. "If you're a defense agency, you want to create a simulation that will allow a missile that gets built to fly up to an enemy something-or-other and detonate. The same tools and same set of skills are used in the pharmaceutical industry to figure out

SIGN IN TO RECOMMEND

SIGN IN TO E-MAIL

PRINT

SHARE

ARTICLE TOOLS SPONSORED BY



More Articles in Job Market »

### TicketWatch - Theater Offers by E-Mail

Sign up for ticket offers from Broadway shows and other advertisers.



Sign Up

See Sample | Privacy Policy

## CareerLinkNYC

Your one-stop resource

- Improve job search
- Start a business
- Understand your benefits
- Continue your education

Visit [careerlinknyc.com](http://careerlinknyc.com)  
and advance your NYC career.

### MOST POPULAR

E-MAILED BLOGGED SEARCHED

1. Frank Rich: The Obama Haters' Silent Enablers
2. Op-Ed Contributor: Too Poor to Make the News
3. Editorial: Doctors and the Cost of Care
4. Disease of Rich Extends Its Pain to Middle Class
5. Thomas L. Friedman: Winds of Change?
6. Seeing Provence From the Slow Lane
7. Paul Krugman: Stay the Course
8. 36 Hours in Research Triangle, N.C.
9. U.S. Births Hint at Bias for Boys in Some Asians
10. Nicholas D. Kristof: Drugs Won the War

Go to Complete List »



### Dudes doing Vegas

ALSO IN MOVIES »

how the little beads in a Bufferin are going to get from your stomach to your brain.”

He estimates that 400,000 people make a living in the United States in one aspect or another of simulation. His company employs close to 200 people, with an average salary of \$85,000.

The profession draws on expertise in a number of areas and does not fit neatly into any single category. Many types of employers in private industry, the military and other branches of government hire simulation experts.

Simulation “overlaps engineering, math and computer science, but it isn’t the same as any one of those,” Mr. Waite said. “The discipline is extremely ecumenical and moves gracefully from representing lots of different things in different ways, while requiring a core set of skills.”

Those skills include a facility with technology but mainly an aptitude for “conceptualizing the world,” he said. Developing a simulation requires enough native intelligence to view a problem abstractly, research the issues and tease out the myriad key elements. Then they must be incorporated into a model in which they are poked, prodded and tweaked to reach useful solutions.

The results must then be presented so that colleagues who use them — engineers, scientists and marketing staff, not to mention the suits upstairs who pay the bills — can follow. An ability to communicate is deemed essential.

So is a knack for working with others. Modeling tasks tend to be done in teams because “we solved most of the problems that one person can do a long time ago,” said Danny Thomas, senior research scientist at AEGIS. “Modeling space flight or missile defense is too complex for one person to understand.”

The use of simulations has grown recently in line with the brute strength of computers and developments in artificial intelligence and data analysis.

“The ability to find optimal solutions quickly has grown by leaps and bounds,” said Corey Clark, an associate professor in game and simulation programming at the Irving, Tex., campus of DeVry University. “Fifteen years ago, you had to have mainframes and cluster computing to do any of this. Now you just need a person in a cubicle.”

Progress is also being driven, he said, by “massive collection of data — every click, every customer entering and exiting a store and using discount cards.”

But while simulations require less time and space than before, the field has existed for many years, as Mr. Thomas’s career shows. He got his start 38 years ago modeling systems for Apollo moon missions and moved to missile defense programs and the [space shuttle](#).

When he started, people entered the field through a general science background; then software programmers gravitated to it. Now simulation is seen as an academic and professional discipline in its own right, said D. J. Weed, executive director of the [Society for Modeling and Simulation International](#).

MS. WEED pointed to a proliferation in simulation degree programs at universities. Auburn, Old Dominion, the Naval Postgraduate School, Alabama-Huntsville, Central Florida, [Georgia Tech](#) and Arizona are well regarded for courses related to simulation and modeling, she said.

Francis Ford Coppola's "Tetro"  
Eat, drink, think, change

nytimes.com

MOVIES

ADVERTISEMENTS



KNOW

Register for online courses now at  
nytimes.com/knowledge  
Click here for full details.

Enrich Your  
Knowledge  
Network

Ads by Google

what's this?

**(Teen Jobs) \$10 to 20+ /h**

Found: 281 Teen Jobs Near You. Jobs w/ Benefits & Bonuses.  
LocalJobExplorer.com

**Trade Promotion Software**

Superior Technology-Fast Time/Value Manage Planning through  
Analysis  
www.flintfoxusa.com

**Regression Simulation**

Improve Full-Chip Simulation When Errors are Discovered With  
Siloti  
www.SpringSoft.com

INSIDE NYTIMES.COM

Many of those schools have close ties to military or other government institutions. That's where much of the work is.

"The military is big in its use of simulations because it's always trying to be on the leading edge of technology," Ms. Weed explained. But she said that economic conditions today were conducive to growth in private-sector work.

While the skills are used in different industries, simulation professionals tend to stay in just one, often because they become adept at using certain types of hardware or software, she said.

But one aspect of modeling applies mainly to work for the military or organizations like [NASA](#) that people should consider before entering the field: Reality can't be avoided forever.

"No matter where they are, there is this question of plausibility and credibility of the simulation," said Mr. Waite, the AEGIS chairman. Applying a simulation "is often a life-or-death decision. Kids going into battle will behave this way instead of that way depending on whether you did your job right."

*Fresh Starts is a monthly column about emerging jobs and job trends.*

[Sign in to Recommend](#)

A version of this article appeared in print on June 14, 2009, on page BU10 of the New York edition.

[More Articles in Job Market »](#)

**Times Reader 2.0: Daily delivery of The Times - straight to your computer. Subscriber for just \$3.45 a week.**

Ads by Google

[what's this?](#)

**Online Promotion Company**

Compliant Rules State Reg & Bonding Online/Offline Support 860-245-5685  
www.ComplianceSweeps.com

**Hiring Gifted Psychics**

Phone psychics needed. Work from home. Experience required.  
www.hiringpsychics.com

**Intelligence University**

100% online intelligence college. Get started on your college degree!  
www.apus.edu

**Past Coverage**

- [Answering Baseball's What-Ifs \(April 7, 2009\)](#)
- [First Stars Were Brutes, but Died Young, Astronomers Say \(August 1, 2008\)](#)
- [NATIONAL BRIEFING | SCIENCE AND TECHNOLOGY; Sea Levels Rose Faster Than Estimated \(June 19, 2008\)](#)
- [Scientists Work on Decade-Based Forecast for the Climate \(May 1, 2008\)](#)

**Related Searches**

[Computers and the Internet](#)  
[Hiring and Promotion](#)

[Get E-Mail Alerts](#)  
[Get E-Mail Alerts](#)

MUSIC »



**Generations Mingle at This Year's Bonnaroo**

OPINION »



**Room for Debate: Too Much Student Debt?**

BOOKS »



**'Byron in Love — A Short Daring Life'**

OPINION »

**Editorial Observer: Risk of 'Driving While Black'**  
How deep-seated bias remains an obstacle to a "postracial" America.

WEEK IN REVIEW »



**Republicans Rethinking the Reagan Mystique**

EDUCATION »



**No Longer Letting Scores Separate Pupils**

[Copyright 2009 The New York Times Company](#) | [Privacy Policy](#) | [Search](#) | [Corrections](#) | [RSS](#) | [First Look](#) | [Help](#) | [Contact Us](#) | [Work for Us](#) | [Site Map](#)