

## **Great Economy, Looming Retirements, and Innovative Solutions Creating Demand for Engineering and Computer Science Professionals in Sacramento Region** *by S. K. Ramesh and Cici Mattiuzzi*

A healthy economy demands the talent of those who can design and build things and who can make things work. At California State University, Sacramento, the College of Engineering and Computer Science has seen the demand and is providing the talent, training the professionals who will grow the economy in coming years.

Over the past four years, recessionary trends and other market forces caused a slowdown in the hiring of engineering professionals. Right now, and in this region, the economy is changing gears. Those who are entering the field and those who are thinking about moving up need to pay attention to both the big picture and the view from the ground in the community.

When people and companies are spending money, engineering and computer science opportunities increase. Engineers create the products and services that people want, everything from the iPod in your pocket to the transportation system that gets you where you want to go. They increase the efficiency of companies with computer systems and automation. Not everything can be outsourced. It is difficult to import ideas and innovations, and infrastructure has to be built here. The front end of the baby boom retirement wave is also starting to impact hiring, and will continue to drive demand for years to come.

The unemployment rate for the Sacramento area is the lowest it has been in years. According to Employment Development Department Labor Market Analyst David Lyon, the growth in Architectural and Engineering Services has been consistent over the past 12 months, and the trend is continuing. The signs are particularly positive in civil engineering and in construction engineering and management. With infrastructure growth, government operations increase, and the hiring of information technology professionals rises. Manufacturing is showing growth in this region and increased leasing activity is a good advance indicator that companies are expanding their operations. We can expect manufacturing growth to continue, particularly for custom designed products, and systems that require active customer involvement and custom installation.

At Sacramento State, we pay close attention to employment trends for engineering and computer science graduates. More than 80 engineering and computer science companies will be recruiting on campus this spring, and salaries are competitive.

We are also looking towards the future, ever mindful that change is the only constant. For those who are in the early stages of their education, and those who

understand that learning must now be a life-long pursuit, it is not enough to focus just on the rising local skyline.

In 2005, the fastest growing professional group in the Institute of Electrical and Electronics Engineering (IEEE) was the Industrial Automation and Robotics Society. This is a good indication of where informed insiders see industry and opportunity moving. Even though some have said that “Moore’s Law” for the exponential growth of computing power has just about run its course, there remains no foreseeable end to an information and technology revolution that has only quickened in pace over the past few decades. Fields such as biotechnology, nano-technology and mechatronics are in their infancy and are challenging the notion of a specialist. Emerging technical careers will require skills and talents from a variety of disciplines, including medicine, biology, electrical engineering materials engineering, mechanical engineering, and robotics, just to name a few.

The future challenge for academic programs, and for students and professionals is to strike a balance between the need for ever increasing technical depth in specialty areas, while maintaining a breadth of knowledge in rapidly changing and expanding fields of study. Engineers and computer scientists are building the communication systems and computing tools that will allow for advances in research, development, knowledge and education. They are not just designing the foundations for skyscrapers, they are designing the foundations for the future.

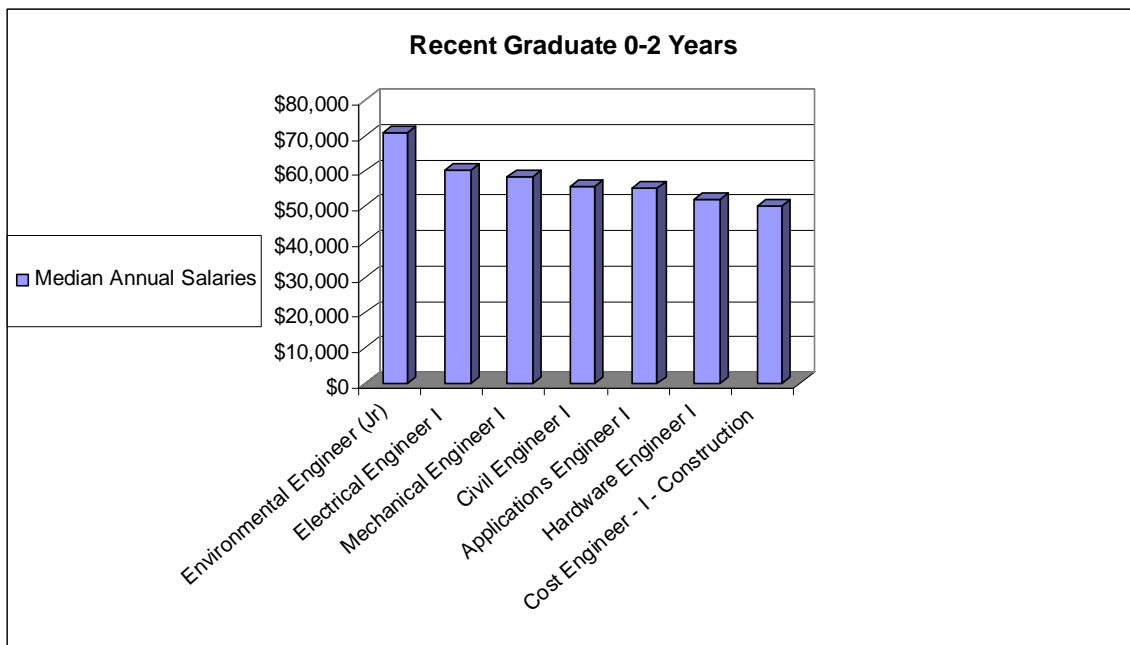
Looking to the future, major challenges lie ahead in the field of energy production and distribution. California is already a leader in Clean Energy. The total worldwide market sales for clean energy are expected to grow by \$ 85 billion in ten years according to the recently announced Sacramento based Clean Energy Initiative ([www.cleanstart.org](http://www.cleanstart.org)). Sacramento is the 4th largest metropolitan region in California, and it has 2 technology incubators, multiple funding sources, and almost 50 clean energy companies already at work. Investment in clean technology has the potential to add thousands of new jobs to the region.

The story about growth and demand in the energy sector can be repeated for the health care field, and for transportation and communications and for housing. Our economy and our society is growing and the challenges are evident. The demand for creativity is an opportunity for problem solvers. Organizations like SARTA ([www.sarta.org](http://www.sarta.org)) foster entrepreneurial growth and attract venture capital to the Sacramento region ensuring that we will be at the forefront of this growth curve for years to come.

**Salary ranges in the Sacramento region (Source: KForce.com)**

Typical Qualifications: Recent Graduate with 0-2 years of experience

Category	Median Annual Salary
Environmental Engineer (Jr)	\$70,929
Electrical Engineer I	\$60,060
Mechanical Engineer I	\$58,272
Civil Engineer I	\$55,691
Applications Engineer I	\$55,172
Hardware Engineer I	\$51,982
Cost Engineer - I - Construction	\$49,915





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