Seeking a job in the field of Control Systems

There are lots of possibilities for jobs in the field of control systems nowadays. Control systems are not well understood in many industries, and you might find yourself quickly becoming the go-to person for controls in a company. To become such an expert, your foundation in Controls at Poly will be a big—no a HUGE—help. It has proven so already for many recent grads. Where to look:

Control Engineering magazine – This is a trade journal that you really should become familiar with if you want to go into this field. It will show you how controls is practiced in industry. If, when you are reading it, you don’t understand something, you can always write me and ask. Best email for that is fowen@aoengr.com, my email for my outside company.

IEEE is also good in controls, better than ASME.

The American Control Conference is the traditional controls conference that many controls people attend every year.

ISA – Now the International Society of Automation (was the Instrument Society of America). They cover mostly the process industry, but they also cover motion control.

There is a movement underway nowadays called, variously, the Internet of Things (IoT), the Industrial Internet (G.E.’s term), or Industry 4.0 (the German’s term). In this vision of the future, everything will be linked to, accessible and maybe controllable from the Internet. This is an exploding field that will figure big in controls in the future. You will be able to control a Motomatic with your smart phone…from Switzerland! Google these terms and read about it.

Here are some random thoughts about various industrial sectors that use controls. Get to Googling.

Manufacturing

Robot welders and assemblers

Aerospace

Boeing, Lockheed Martin, Northrup, Airbus

Motion control

Parker Hannifin – Parker is a big supporter of Controls education at Poly, and they like our grads. Trouble is, the main part of the company is in the Midwest. Still, their biggest division (aerospace) is in Irvine, and they like our grads there. Parker also has a network of third-party vendors that are much more than sales people. Often these vendors get very involved in helping customers design the system they need. So if you went to work for one of these vendors, you might wind up working on lots of different projects for many different customers. Some years back, Parker bought a big electro-mechanical controls company up in Santa Rosa. It’s now known as Parker’s Electromechanical Automation division.
Internet
Cisco, G.E.’s Industrial Internet, the Internet of Things (IoT, an exploding field). There’s lots of stuff to be read about this on the Internet.

Building controls (HVAC controls)
Siemens, Johnson Controls, Trane, Carrier

Automotive
Tesla – They’ve hired lots of grads recently, and they like our controls teaching

Our German partner universities (Munich and Karlsruhe) are very active in the automotive field. Controls is an important area in German automotive companies. Karlsruhe is located near Bosch’s headquarters, and several of the profs at Karlsruhe used to work for and still consult for Bosch.

Process control industry
The process control industry (think two-tank experiment, but much more) consists of power plants for producing electricity (where I got my start in controls), chemical plants, refineries, food-processing plants. Texaco has big petro-chemical operations around Bakersfield, my favorite place. Big refineries in Richmond, Benicia, El Segundo, Bakersfield. For the heavy California crude oil, often they pump steam into the ground to release the oil from its captivity in the geological formation. These steam-injection systems also need controls.

Controls companies
Caltrol (an employee-owned firm, centered in Las Vegas, with lots of clients and several offices in California), Emerson (a huge, process controls company I used to work for), ABB, Honeywell (Phillips refinery on Nipomo mesa uses Honeywell DCS (Distributed Control System))

Simulation
Power plant simulators (try things out, run emergencies, without blowing up the plant), engine simulators to try out new control schemes without blowing up an engine, aircraft/helicopter simulators

Energy
Steam and gas turbines have sophisticated controllers. So look for jobs at G.E. (gas and steam turbines), Solar Turbines (San Diego), Siemens, Pratt & Whitney (aircraft gas turbines), Rolls Royce (aircraft turbines).

Pacific Gas & Electric (they operate Diablo Canyon Nuclear Power Plant), Southern Cal Edison, San Diego Gas & Electric, Parsons Brinckerhoff (San Francisco), Calpine (up in Northern California)

Controlling wind turbines is a big, current controls problem.
G.E. operates a big power production site near Tehachapi.