Please write a five to seven page analysis (1250-1750 words) of how your profession has been impacted by or responded to globalization. You can use a company you currently work for or a profession in which you hope to be employed. Please use elements from the Scholte text to inform your analysis. Your grade will be based both on content and style, so be sure to check the spelling, grammar, and formatting of your work before you turn it in. Make sure to use proper citations and to avoid plagiarism - this includes not just exact copying of a written text, but also the unattributed copying of ideas, or making only minor changes to another text and passing it off as your own. Please read the attachment on writing a history paper and citing before composing your essay. You also have the option of creating a 5-10 minute video answering the above question. Please see me if you would like to select that option.

The development of microcontrollers has impacted globalization at many key points depending on your definition of globalization. It has been greatly driven by globalization.

* transplanetary connections/communication
  + Formation of near immediate long distance communication
    - Cornerstone to globalization as transplanetary connections/communication
    - Creation or alteration of almost every major current industry along with changes in transportation, production, and finance
    - Cost of technology dropped rapidly allowing access for an ever increasing number of people (especially in cell phones with internet usage)
* Liberalization
  + Open and free trade between technology companies (specifically open source)
  + Only state restrictions on things like cryptography, IP
* Universalization
  + Globally, everyone wants a cell phone / internet of things devices / deskop / tablet
  + Globally, everyone wants access to information through the internet
* westernization/modernization
  + internet/high tech business started in the west
  + production chains for high tech objects stretches across several countries, some developing, some developed
* respatialization
  + Software doesn’t need to be developed any particular place
    - Collaboration between remote areas of the globe

Tie these facts in:

* Footloose computer capital
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  + Specific hardware is built in specific places
    - Once all the hardware is built, it can be assembled anywhere
* Uneven incidence of globalization
  + Places that assemble some of the hardware can’t afford the hardware they are assembling

STILL TODO:

Figure out where to put the embedded and software definition

Figure out a good conclusion

The field of embedded hardware and software in the Pacific Northwest has both helped accelerate globalization, and has its foundations in globalizing events. Starting with roots in the great depression and the new deal, the Pacific Northwest went through a high tech revolution during World War II due to natural resources like the Columbia dam. After World War II, the environment was perfect for major companies like Tektronix to begin growing the Silicone Forrest. Today the landscape is dotted with titans of industry such as Intel, Microsoft, and Apple. The technology developed in such companies has revolutionized the world, especially in terms of communication as the number of active cell phone subscriptions is nearing the number of people on Earth.

The field of embedded hardware and software encompasses microcontrollers, ASICs (Application Specific Integrated Chip), and FPGAs (Field Programmable Gate Arrays), and the firmware and software that runs on the hardware.

To examine the way the field of embedded computing and microcontrollers has been shaped by globalization, one must first define globalization. According to Sholte there are five typical possibilities when defining globalization, Internationalization or the exchanges between countries, Liberalization or the liberties that people enjoy, Universalization or making everything in the world the same regardless of location, Westernization or making everything in the world similar to the western states, or Schulte’s personal choice of Transplanetary or describing globalization in terms of the connections between people. If we talk about things in terms of Internationalization, the microcontroller industry has spanned multiple countries for their supply lines and production chains to produce final products. If we talk about things in terms of Liberalization, the microcontroller industry has varying fair use policies but all open source hardware and software is free for anyone in the world to use. If we talk about things in terms of Universalization, the microcontroller has been key in producing products that everyone wants globally like cell phones and tablets, creating a shared usage experience. If we talk about things in terms of Westernization, the west began the major technological and production revolutions that allowed for the microcontroller industry to develop. If we talk about things in terms of Transplanetary connections, the microcontroller industry is a key player in bringing near instant communication methods to every corner of the world. Scholte prefers the definition of globalization in terms of Transplanetary connections which plays well with the role microcontrollers have played in increasing Transplanetary connections.

The field of computing and microcontrollers in the Pacific Northwest has a long and complicated history with its roots firmly embedded in the development of globalization. Starting back in the great depression, FDR allocated federal funds for several 3 letter organizations as a stimulus plan. The 3 major groups that impacted the Pacific Northwest were the AAA (Agricultural Adjustment Administration), WPA (Works Progress Administration), and CCC (Civilian Conservation Core). The CCC brought over a half million workers jobs in all 50 states and some territories, working on outdoor, recreation, and construction projects. In Oregon this lead to many public parks and national forests being built and forests being planted for later agricultural purposes. The WPA took many people off unemployment and gave them jobs building roads, bridges, and dams, such as the Columbia Dam and other infrastructure projects in the Pacific Northwest [1]. The AAA kept farming alive and increased topsoil quality throughout the United States by giving farmers money to produce certain crops and not to produce others, thereby increasing demand for certain products. [2] These three groups increased economic production and infrastructure throughout the Pacific Northwest, paving the way for the boom in production that followed.

As World War II begins the United States keeps a policy of non-intervention and they are left out of the war until December 7th 1941 when the Japanese bombed Pearl Harbor. This single event unified the county against a common enemy and sparked production in three major areas, boats, airplanes, and nuclear power. Boeing in Seattle quickly went through a transformation, quickly growing to become 70% of all revenue in Seattle. By the end of the war they were producing a plane every day. Similarly in Portland, Kaiser went through a transformation to employ over 100,000 people by the end of the war. Their production grew until they were able to build a boat every 5 days, producing more ships than anywhere else in the United States. Hanford Washington also grew at a great rate, refining nuclear material for the government’s various nuclear programs. Nowhere near as many people ended up in Hanford as they did in Seattle or Portland as the nuclear refinement program was highly classified and the workers were screened much more carefully. All three locations were picked due to their proximity to the Columbia Dam, which serviced most of their electrical needs. The combination of population, power, and relevant businesses rocketed the growth of the Pacific Northwest forward into the cutting edge of technology and production.

When World War II ended, the United States was left in a strange and unique position. Instead of the world returning immediately to peace, tensions between the United States and the USSR grew into a cold war of technological competition and nuclear proliferation. The usual pattern of peacetime after war is for economies to experience a lull as the need for wartime goods expires and the job market must change to other industries. In this case, the fear of global nuclear war did not let either group fall into a major lull. Instead, the respective governments poured money into creating enough nuclear weapons so that the other side would be afraid to use theirs, and a variety of other technologies that might somehow give them the upper hand. Maybe the most famous example of this technological arms race is the space race where both governments raced first to get a man into outer space, then to get a man to the moon. The necessitation of new methods required to achieve such ambitious goals created a boom in technology development, especially in electrical technologies.

To engineer electrical technologies, the most useful piece of technology is the oscilloscope, a device that allows one to accurately measure electrical signals. When World War II ended, a large amount of technically able men left military service and went into business for themselves doing work in various technical fields. The most famous business to begin under these circumstances was Tektronix, a business started by 4 veterans and the very first producer of a good oscilloscope available to the public. This development revolutionized the field of consumer and professional electronics as electricity was now relatively easy and cheap to measure. Tektronix equipment was used to develop many different technologies, such as an instant communication method desired for the US fire watch. The knowledge the veterans gained working on high technologies during war time allows for many different fields to become public, such as encrypted radio, sonar, and microwaves. In addition, there were scopes developed specifically to clean up video signals used for TV, making video quality in many sectors improve significantly. These improvements to the fields of electronics and communications equipment spurred the field of communication devices in both price and availability, allowing for an ever greater number of transplannetary connections.

In these modern times, the tools of communication are the internet and the cell phone. The price of cell phones and the availability of cell networks encompassing most of the globe has radically changed our methods of communication. Most of these cell networks allow for voice communication, with a smaller subset offering internet communications as well. The number of active cell phone subscriptions in the world reached 6.8 billion in 2013, meaning there were about 96 cell phone subscriptions per every 100 people [3]. This explosion of devices allows people in almost every disparate region of the world to communicate with each other and with people in other regions of the world, although fees may prohibit free and unabated use. Every single one of these cell phones is run by a microcontroller or ASIC device, meaning it would not be possible to achieve so much without the reductions in price and increase in availability microcontrollers afford.

**Impacts on field from globalization:**

* Great depression
  + FDR and the new deal
    - PNW receives a lot of money
      * AAA
      * WPA
      * CCC
    - Columbia dam produces a lot of electricity
  + Feeds into WWI and WWII
    - Columbia dam provides a lot of the power used for production of wartime goods
* WWII
  + Urbanization
  + Military bases
  + Boeing in Seattle, Kaiser in Portland
    - Produce most of the airplanes and boats (respectively) for WWII
  + Industries that comes from WWII
    - Nuclear
    - Time saving technologies (like computers)
    - Genetic engineering
    - Information revolution
    - New agricultural techniques
      * WWII braceros program
  + Feeds straight into the cold war, no peacetime economy lull after WWII
* Cold war
  + Space race
  + Technology arms race
  + Nuclear proliferation (maybe not relevant)
* Formation of computer business market
  + WWII industry boom for Portland and Klamath Falls
    - Other PNW areas like Washington and Alaska
  + Techtronic’s oscilloscopes
    - Formation of many Portland businesses
    - Reduction of gender stratification (employing many females)
    - New management ideals
    - Company culture
      * Everyone could build stuff with the parts available at their own will
    - Produced everything in house (cathode ray tube)
    - Made TV better (fix distortion and signal issues with special TV scopes)
    - Provided scopes, tool kits, and field support engineering (full package)
    - 1964 goes public, slowly loses company culture, many top engineers leave and start high tech companies in Portland
  + Portland being formed from California gold rush, then Alaska gold rush

**Different definitions of globalization and how they examine how the world has developed**

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**Forces driving globalization:**

1. Capitalist production
   1. Global markets to increase sales volumes and enhance economies of scale
   2. Global accounting of prices and tax liabilities to raise profits
   3. Global sourcing to reduce costs of production
   4. Supraterritorial commodities to increase the channels of accumulation
2. Governance/regulation
   1. Governance agencies’ provision of the infrastructure to effect global connections
   2. States’ liberalization of cross-border transactions
   3. Legal guarantees of property rights for global capital
   4. Establishment and growth of transworld governance mechanisms
   5. Transplanetary standardization of technical specifications, legal principals and administrative procedures
3. Identity construction
   1. National ‘selves’ constituted in relation to foreign ‘others’ within a global realm
   2. Assertions of various nation identities through transplanetary diasporas
   3. Affirmations of various non-territorial identities through transworld networks
4. Rationalist knowledge
   1. Secularism constructions of the social world in terms of planet earth
   2. Anthropocentric orientation to the planetary home of the human species
   3. Scientific notions of objective truths with transplanetary validity
   4. Instrumentalist efficiency arguments against ‘irrational’ territorial divisions

**Other useful items that should be talked about:**

Commoditization and how it has expanded with globalization

Collection of capital

Bibliography:

1. <http://www.portal.state.pa.us/portal/server.pt/community/history/2785>
2. <http://www.authentichistory.com/1930-1939/2-fdr/1-newdeal/>

**TOP OF NOTES**

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(COPY PASTED, DON’T TAKE AS ALL USEFUL INFORMATION, BUT SOME MIGHT BE)

2. Scholte unpacks four social forces or dynamics that have driven the development of globalization – Capitalism, governance/regulation, identity, and rationalist knowledge. Explain each of these.

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A. What is commoditization?

When a surplus resource is turned into an object that can be traded.

B. How has it expanded under conditions of globalization?

6 developments:

1. Global markets have increased the scale of older forms of commodification in primary and industrial goods
2. Consumerism, much of it related to global products, has considerably extended the range of industrial capital
3. Financial institution growth
4. New commodities areas involving information and communications
5. global companies and markets for biotechnology and nanotechnology
6. global migration adds to increased commodification of care work

C. What are:

Consumer capital:

Objects purchased by a consumer which are rapidly acquired and then disposed of.

Finance capital:

Finance as a means of accumulation and support to capitalist production

Communication and Information Capital:

Hardware (for communication)

Software

Servicing

Content

The support and distribution of the above 4

Genetic/ Atomic capital:

Biotechnology and nanotechnology

People creating/editing organisms and creating tiny machines

Care Capital:  
services provided to people who are unable to care for themselves, usually disabled, elderly, ill, or young people.

STOPPED ON HW # 5