# Hamed Seyedroudbari

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## EDUCATION

B.S. - Computer Engineering, California State University Northridge *(expected - May* 2019)
**GPA: 3.93** *Attending Grad School in Fall 2019*

## EMPLOYMENT

Student Assistant - *Faculty Technology Center, California State University, Northridge* 10/15 - Present
- Assist students & faculty, in person & over the phone, with educational technology of learning management system.
- Communicate effectively with students & faculty to ensure technical software and hardware issues are resolved.

IT Business Relationship Management Intern - *Sony Pictures, Culver City* 9/18 - 12/18
- Work with developers to ensure business requirements are satisfied in the developed ServiceNow applications.
- Use agile methodology to test applications, manage ticketing, and information security, on an enterprise level.

Software Engineering Intern - *Raytheon, Point Mugu* 5/18 - 8/18
- Developed 800-page software design document (SDD) for ALR-67 RWR (radar warning receiver).
- Boot Linux on Xilinx Zyng Ultrascale+ MPSoC ZCU102 using VxWorks and Xilinx Vivado to prototype software and hardware of ALR-67 RWR.
- Used agile software development to develop C++ code for WinAnalyzer in MS Visual Studio to translate received signals from ALR-67 RWR into messages for human interpretation.
- Created Bash scripts to build & compile Ada and VxWorks projects through the command prompt.

Math Tutor/Office Assistant- *A Plus Tutorial Center LLC., Mission Hills, CA* 12/13 - 5/16
- Tutored middle school and high school students one-on-one in various math concepts (basic math – calculus)
- Perfomed general office duties such as filing, copying, updating company forms, and student information.

## PROFESSIONAL EXPERIENCE

Design of 32-bit RISC-Y Processor (SystemVerilog Project)- *California State University, Northridge* 10/18 - 12/18
- Designed and Implemented data path, control path, & pipelined architecture of RISC-Y processor in SystemVerilog using bottom-up methodology.
- Processor contains AASD, ALU, Sequence Controller, Registers, RAM, ROM and executes instructions in four clock cycles (Fetch, Decode, Execute, Update).
- Verification is done by initializing ROM with instruction sets, writing testbenches, and using Synopsys VCS to test processor's execution of ALU operations.

FCS (Frame Check Sequence) Project - *California State University, Northridge* 10/18 - 12/18
- Implemented the cyclic redundancy check algorithm which detects errors in frames received by IEEE 802 protocols (Wi-Fi, Ethernet).

Ultrasonic Radar (FPGA/SoC Project) - *California State University, Northridge* 01/18 - 12/18
- Programmed Xilinx Zynq-7000 ARM/FPGA SoC board using VHDL to operate two ultrasonic sensors using PWM and perform geometric calculations.
- Established interface between FPGA and Zynq processor by creating custom IPs and using AXI interconnect.
- Designed and implemented algorithm in C to filter out noise or invalid distance readings from ultrasonic sensors.
- Established TCP/IP protocol using Node.js and use JavaScript to display object's distance on graphical interface.
- Used JIRA to plan out sprints, tasks, issues, and create Gnatt chart.

Deal or No Deal (SoC Project) - *California State University, Northridge* 01/18 - 04/18
- Designed hardware platform on Zynq-7000 ARM/FPGA SoC development board using Xilinx Vivado to configure GPIOs for game control.
- Programmed Zynq processor with C for gameplay and to display game information to player via UART interface.

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ARM Assembly Project - *California State University, Northridge* 07/17 - 08/17

- Used ARM7 Assembly to calculate combinations and permutations of up to five input variables.
- Used stacks and pointers to store combinations and permutations in memory.

File Pollution Project - *California State University, Northridge* 09/16 - 10/16

- Used Java and linked list data structure to detect dupllicate files in a specific folder and output results to user.

Blackjack Game - *California State University, Northridge* 02/16 - 05/16

- Developed a game of blackjack using Java and object-oriented programming.
- Objects created include Hand, Deck, Score (extends Deck). Gameplay is displayed on terminal.

## RESEARCH PROJECTS

3D Image Object Detection Research Project - *California State University, Northridge* 12/18 - Present

- Program Xilinx FPGA with VHDL to superimpose images from two cameras & create 3D image on VGA display.
- Goal is to use stereo vision and the disparity map between two images to find the distance to a particular object.

Robotic Non-Destructive Testing Research Project - *California State University, Northridge* 11/18 - Present

- Implement an ADC on robot to convert an analog ultrsonic signal into a digital signal for processing purposes.
- 14-bit data from output of ADC IC is read from an SPI interface by programming a Raspberry Pi using Python.

Undergrad Research Project Assistant - *California State University, Northridge* 07/17- 12/18

- Researched wireless power transfer to implanted devices by analyzing piezoelectric properties.
- Built magneto-electric devices using piezoelectric and magnetostrictive films which receive electromagnetic radiation, and induce a voltage and current in the circuit.
- Plotted and analyzed acquired data (voltage, current, magnetic field) in MATLAB.

Microwave Power Transfer Research Project - *California State University, Northridge* 09/17 – 12/17

- Designed energy harvesting circuit (rectifier, voltage multiplier, charge pump, boost converter) in ADS to convert Wi-Fi signals received in the form of AC to DC in order to wirelessly power consumer electronics.

## TECHNICAL SKILLS

| | |
|---|---|
| **Programing** | C C++ Java Object Oriented Programming VHDL SystemVerilog Verilog MIPS Matlab ARM7 Assembly Simulink Bash Scripting |
| **Systems** | Windows Linux Mac OS Microsoft Office JIRA Clearcase |
| **Equipment** | Signal Generator Multimeter Oscilloscope LCR Meter Spectrum Analyzer |
| **Software** | Xilinx Vivado, Vivado HLS VxWorks Eclipse OrCAD PSpice ADS Keil uVision Synopsys VCS Synopsys Design Compiler MS Visual Studio Vim |
| **Documentation** | IEEE Format Software Design Document |

## LEADERSHIP EXPERIENCE AND ORGANIZATIONS

Tau Beta Pi Member
Society of Women Engineers (CSUN)
IEEE Club Vice Chair
UCLA Hospital Care Extender

## LANGUAGES

English (fluent), Farsi (native), and Spanish (business level)

## AWARDS

Honors at Entrance Scholarship (2015)
University Scholarship (2017, 2018)
Senior Project Showcase (1st Place - Ultrasonic Radar, 2018)
James R. Simpson Merit Scholarship (2016)
Robert Sprague Foundation Scholarship (2018)
STEM Advantage Scholar (2018)
IT Outstanding Student Employee Award (2018)