Arjun Nair

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Education

Bachelor of Science in Computer and Electrical Engineering, Double Major Aug 2019 – May 2023
North Carolina State University *Raleigh, NC*

Relevant Coursework

- Digital System Design in Verilog • Computer Systems Programming • Data Structures and OOP for Computer Engineers • Embedded Systems • Physics of Microelectronics • Fundamentals of Logic Design • Analytical Foundations of Electrical and Computer Engineering • Circuits and Systems • Introduction to Signals • Discrete Mathematics for Computer Scientists

Work Experience

Intel Corporation May 2022 - Present
Incoming Package Design Engineer Intern *Chandler, AZ*

* Will perform **microelectronic** package electrical **modeling** and **simulation** using tools such as PowerDC
* Will assist in microelectronic package substrate **technology development**
* Will apply Python or C **scripting** to streamline processes

Edwards Vacuum May 2021 – Aug 2021
Electrical Engineering Intern *Chelmsford, MA*

* **Designed** and printed circuit board **schematics** to be used in conjunction with **12 product lines**
* Built **test fixtures** to perform Reliability Demonstration Testing on **electrical sub-assemblies**
* Performed **Design Verification Testing** (DVT) on various components and products using a variety of **lab equipment**

Projects

DSP Frequency Estimator Design | *System that can estimate when and where a power signal was recorded* Apr 2022

* Implemented a periodogram-Frequency based estimator using **MATLAB**
* Applied **fast Fourier transforms** to discrete signals to obtain Power Spectral Density
* Designed an **interpolation process** to refine previous coarse frequencies
* **Analyzed performance** of estimator under noisy scenarios and the effects in terms of mean squared error
* **Documented** findings as an **IEEE** conference paper

Autonomous Car Controlled by IOT | *Custom Car controlled by IOT that autonomously follows electric tape* Aug 2021

* **Soldered** and programmed MSP-430 board in **C** to work in conjunction with 2 DC motors and on-board IR emitter and detector
* Implemented Pulse-Width-Modulation to control wheels using on-board **clocks** and **timers** and **modelled** motor characteristics in **MATLAB**
* Used **IOT** module to control car navigation via **WiFi** using a **custom** web interface using **UDP protocol**
* Implemented onboard **serial communication** using **SPI** protocol and tested and **debugged** device using **logic analyzer**
* Created H-Bridge board with pFETs and nFETs to allow forward and reverse control, along with power board consisting of 4 AA battery-pack
* Developed **Python script** to handle incoming packets and allow users to control the car using WASD and game controllers over WiFi

Practical Game Design | *Freshman Engineering Design Day (3rd Place)* Nov 2019

* Designed a game body structure using **SolidWorks**
* Ported design to **3D printing** machine to create a prototype and complete the product assembly
* Conducted **user testing** of the novel game to verify application, structural integrity, and feedback

Technical Skills

Languages: C/C++, Python, Verilog, VHDL, Git, Assembly, MATLAB, HTML
Circuit Design: Altium Designer, PSpice, Logic Design, Soldering, Verification Testing, SolidWorks
Misc: Microsoft Word, Microsoft Excel, Adobe Photoshop

Activities

IEEE at NCSU (Member) Jan 2022 - Present

Rock Climbing Club (Member) Aug 2021 - Present

NCSU ESports Club (Varsity Team) Aug 2019 - Present