

# 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