TRISTAN VENTURA

Electrical & Computer Engineer · Software Developer

EDUCATION

Honors College of Rutgers University - New Brunswick Sept. 15 to Jan. 19

BS Electrical and Computer Engineering 2019

GPA: 3.7

Current Coursework: Digital System Design, Machine Learning, Wireless Communication Systems, Linear Optimization, Mobile App Development

Relevant Coursework: Digital Signal Processing, Computer Architecture, Electronic Devices, Digital Electronics, Computer Architecture, Programming Methodology, Digital Logic Design, Differential Equations

EXPERIENCE

AdhereTech New York City

Electrical Engineering Intern June 18 to Sept. 18

- Built a piece of customized, automated test equipment to collect large amounts of data and characterize new electromagnetic sensor patterns for use in the next generation Pill Bottle
- Created and wrote firmware for the control module of the test equipment using an Arduino, two stepper motor drivers, reed switch, temperature, & limit switch sensor interfaces. Additionally designed & built a custom Arduino shield PCB using PCB drafting software
- Developed a desktop application from scratch using C# & WPF to collect, store, and analyze thousands of entries of sensor data as well as interface with the test equipment and device under test via UART serial communication
- Designed, built, and debugged hardware issues on electromagnetic sensor board PCBs
- Iteratively designed a new electromagnetic sensor pattern in 6 weeks that performed 1.5x better than legacy rendition
- Delivered weekly presentations to business & engineering teams regarding progress and findings

RFInD New Brunswick, NJ

Chief Technical Officer & Co-Founder Apr. 16 to Jan. 18

- Lead product development and engineering teams in creating an RFID-based real time location tracking system used by hospitals and disaster triage teams
- Designed and animated schematics and cinematic presentations using Blender, AutoCAD, and SketchUp
- Raised over $10,000 through competition placement, pre-seed investors, and university funding
- Presented RFInD as a Commitment to Action at the 2017 Clinton Global Initiative University conference.

National Science Foundation - NJIT site Newark, NJ

Undergraduate EE Researcher/Developer May 17 to Aug. 17

- Developed a cross-platform mobile application for use in educational demonstrations of graphical paraxial ray-tracing in geometric optics in C# using the Unity Game Engine
- Allowed educators to provide students with more interactive methods of learning to supplement existing curriculums
- Helped improve university-level physics curriculum by collecting, storing, and analyzing user performance and progress data
- Presented application at the ASEE Annual Conference in 2018

PROJECTS

Analog Audio "Vinylizer" Current

Designed and built a device that takes an audio signal and, using a number of passive filters, alters the spectrum of the signal in order to emulate the sound of vintage record players. The signal was then played through a small speaker and passively amplified using a horn.

- Skills/Softwares: MATLAB, PSpice, Spectral Analysis, Analog Filter Design, Circuit Design & Assembly, Soldering, Woodworking

Facial Recognition Vending Machine

Engineered the hardware and firmware for a vending machine that can identify users based on their face, check an online profile for a user's candy preference, then automatically dispense the preferred candy. Demoed the project at HackRU.

- Skills/Softwares: C/C++, Arduino Platform, Hardware Design, Motor Control

LoRa-enabled Notifier Keychain (in progress)

Prototyping a short range, wireless notifier keychain using the Arduino platform (and later an ARM Cortex-M3 MCU) and a LoRa module to avoid using cellular networks. Activating the device pings a paired, identical, device which responds by lighting up and vibrating.

- Skills/Softwares: C/C++, Arduino platform, TrueSTUDIO, AutoCAD, KiCAD

CONTACT

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tristanventura

tventura97

SKILLS

ELECTRICAL/COMPUTER ENGINEERING

- Schematic Capture
- Electronics Prototyping
- Circuit Design & Analysis
- PCB Design & Assembly
- Basic SystemVerilog
- Through Hole & Surface Mount Soldering
- Basic Filter Design, Sampling
- Spectral Analysis
- UART Communication
- Microcontrollers
- FPGAs
- Use of function generators, oscilloscopes, multi-meters, etc

PROGRAMMING/DEVELOPMENT

- C/C++
- Python
- C#
- XAML
- WPF, Windows Desktop Development
- MATLAB
- Java
- Javascript
- MIPS Architecture
- Android App Development
- Git, Agile

TOOLS/SOFTWARES

- PSpice/LTSpice
- KiCAD, Easy EDA
- Visual Studio, Arduino IDE
- IntelliJ, Android Studio
- Quartus II
- AutoCAD
- Doxygen

AWARDS

Clinton Global Initiative-University (CGI U) Oct. 17

CGI U Alum

Invited by the Clinton Global Initiative - University to speak and present work on an RFID-based RTLS used in optimizing patient treatment in triage environments as a commitment to action.

American Society for Engineering Education June 18

ASEE Published Author

Developed a mobile application and wrote a paper based on educational demonstrations of graphical paraxial ray-tracing in geometric optics. The application and paper were published and presented in the ASEE Annual Conference.

NJ Tech Council Nov. 16

Innovation Video Competition - 2nd Place

Created 3D animations in Blender showcasing the patient tracking system being developed by RFInD for use in a video competition.