

# Vishal Babu

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## WORK EXPERIENCE

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### Nuvation Engineering

Jun 2017 — Present

#### *System Design Engineer*

Responsible for hardware design specifications and test plans for new PCBs, component selection and supporting circuitry design. Coordinated directly with fabrication and assembly vendors to manufacture prototypes, and performed design validation testing and debugged prototype hardware.

- Implemented a functioning Energy Storage System to charge electric vehicles using second life electric car batteries and native battery management technology.
- Assisted in developing a new air cooled inverter design using GaN transistors for a 25KWh output. Technology geared to replace diesel generators.
- Designed and debugged a wearable assistive device for visually impaired users using a Samsung Exynos series Application Processor.

### Tesla Motors

Sept — Dec 2015

#### *Powertrain Engineer (Intern)*

Functions included design, fabrication and deployment of production-line test equipment used in the manufacturing of Powertrain Equipment.

- Designed and built fully-automated test systems and procedures for Model X, and Tesla Energy/Battery products.
- Performed component level thermal/electrical testing and validation.
- Advanced a custom part library on Zuken and Altium by adding 50 new components used by teams across the organization.

### Apple

Jan — May 2015

#### *iPhone Manufacturing Design Engineer (Intern)*

Worked with Manufacturing Design Engineers, Industrial Designers, and Supplier Quality Engineers to minimize manufacturing costs and maximize final product yield. Traveled to supplier headquarters in Asia to implement new manufacturing initiatives, research and develop new technologies, and assist with product yield improvements.

- Developed new fixtures and IPQC test methods for process validation (SPC, Cp, CpK).
- Actualized new testing methods to lower escape rate on iPhone enclosure production by 60%.
- Formulated surface measurement parameters to improve the quality of iPhone 6 surfaces.

### BlackBerry

Sep — Dec 2013

#### *Wireless Protocol Tester (Intern)*

Performed internal and external tests to ensure the compliance of the BlackBerry modem solution and radio protocol stack with cell carrier requirements using system simulators.

- Responsible for automating and refining network specific (3G/LTE) test scripts on simulated cell networks.
- Analyzed and debugged L2 and L3 communication protocol issues for BlackBerry native platforms.
- Identified system-level integration issues with radio protocols (Fast Dormancy, CMAS, Handovers, etc).

*Co-Founder*

- Inventor of worlds first and only non-invasive preventative vaccine delivery solution (Formulation V720).
- Patent Holder ( US 37695010 P 20100825 • CA 2011000835 W 20110720).

## LANGUAGES AND TECHNOLOGIES

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- **Technologies:** PCB Design, Energy Storage Systems, Battery Management, Signal Integrity, Automated Test Systems, DFM/DFT
- **Languages:** C, C++, Python, Java, PostGres, MySQL, MATLAB
- **Frameworks:** Altium, Zuken, AutoCAD, ORCAD SolidWorks, JMP, Octave

## EDUCATION

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System Design Engineering-Term 3B

Sept 2012 — Jun 2017

*University of Waterloo (Canada)*

**Relevant Courses:** Data Structures and Algorithms, Embedded Systems and Microprocessors, Electronic Instrumentation and Design, Digital Computation - C++.

## PERSONAL PROJECTS

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- **Patent Holder:** Inventor of a non-invasive preventative vaccine delivery solution (Formulation V720: WO2012024767 - Google Patents Code)
- **URA:** Designed an optical sensor to improve and maintain a healthy hydration level of an individual by analyzing liquid body waste
- **Kalos:** Built an exercise station using an IMU and a custom-made pressure pad to assist users in performing exercises without obtaining muscle injury
- **Automated Shopping Cart:** Prototyped a new shopping cart that automatically scans items as they are placed in the cart using RFID technology