UJJWAL SINGH

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SUMMARY OF QUALIFICATIONS:

- I have a strong background in product design, planning, VLSI and semiconductors. I am looking forward to utilize my extensive background in Electrical Engineering.
- My objective is to master the art of chip design and carry forward the idea of innovation for semiconductor design and scalability.

EDUCATION:

- ***Master of Engineering in Electrical & Computer Engineering (On-going): CGPA- 3.82/4*** Feb 2021-Dec 2021
  Cornell University, Ithaca: Courses- Introduction to Digital VLSI Design, NanoFabrication & Characterization of Electronics
- ***Bachelor of Technology in Electronics And Communication Engineering: CGPA- 7.9/10*** Aug 2015-Jul 2019
  Guru Gobind Singh Indraprastha University, New Delhi: Courses- Analog Electronics, Digital System Design, Digital Communications

WORK EXPERIENCE:

Graduate Assistant, Cornell University Feb 2021–May 2021
Department: School of Applied and Engineering Physics
- Instructed and graded the Labs for PHYS 2208 and held discussion sessions to clear the doubts faced by students.

Founder, Base Alpha Mar 2019–Jan 2021
- Founded a startup in order to provide efficient engineering solutions for daily life challenges.
- Developed a state-of-the-art cooling technology that provides 4 times area coverage. The second technology is in assembly stage.
- Led a team of 6 industry professionals and lawyers through product development and Intellectual Property Management.

Graduate Engineer, Regal Beloit Corporation Dec 2019–Dec 2020
Department: Research and Development
- Simulated, Built and Tested multiple Electronically Commutated Motors for Power factor, Wattage, RPM.
- Researched and proposed measures for cost reduction amounting up to 3% of the initial cost in a specific ECM with focus on its PCB.

Intern, Siemens June 2019–Nov 2019
Department: Gas and Power Engineering procurement construction transmission solutions
- Researched on HVDC and calculated the correction factors for high altitude transmission at 650V, 850V and 1050V for the Ladakh Project in Hanle and Pang.
- Coordinated with the sales team in procuring the Virtual Reality presentation equipment while also assisting them in negotiations for fabrication of a 3-D printed model of the setup. Initiated the negotiation and saved the organization 50,000 Indian Rupees.

RESEARCH EXPERIENCE:

- **Patents:**

1. Singh, U. 2018. 360 Degree Air Flow Design. India Patent Application 311242, Oct 22, 2018, Patent Pending
2. Singh, U. 2018. 360 Degree Air Flow Technique. India Patent Application 201811043924, filed Nov 21, 2018, Patent Pending

- **Publications:**

1. The Smart City - A Holistic Approach: 11th ICCCNT (pp. 1-7), IIT Kharagpur, IEEE Xplore
2. IoMT - based Pill Dispensing System: 10th ICCCNT (pp. 1-5), IIT Kanpur, IEEE Xplore
3. IoT - enabled Air Quality Monitoring: International Journal of Electronics Engineering (ISSN:0973-7383)

PROJECTS:

- **Full Custom 4th Order Finite Impulse Response Filter (Group Project)** April 2021–June 2021
  Designed a symmetric 4th order FIR filter, starting from the gate level using Transmission Gate and CMOS technology. Optimized the top-level layout for area in gpdk90 using Cadence Virtuoso.
- **GaN HEMT (Group Project)** April 2021–June 2021
  Fabricated a GaN High Electron Mobility Transistor at the Cornell NanoScale Facility. The HEMT included contact formation, mesa formation and gate metalization. Conducted the TLM, Transfer Characteristics and Output Characteristics measurements.
- **2-D Material Thin Film Transistor (Group Project)** Mar 2021–April 2021
  Fabricated a MoS_2 thin film transistor at the Cornell NanoScale Facility. The fabrication included substrate preparation and metal patterning, then used them for photo detection. Extracted the Transfer and Output Characteristics of fabricated TFT.
- **High Voltage Supply Lithium Niobate Pyroelectric Cantilever (Individual On-going Project)** June 2019–Present
  I am actively working under the guidance of Dr. Amit Lal and his PhD students in the MEMS group at the ECE department. My aim is to replicate a real-world high voltage power supply onto a miniature board so that it can be introduced in micro-robots. The project is in its initial stage, I am brushing up the concepts of 3D printing, component design.

SKILLS:

- **Software(s):** Cadence Virtuoso, LTspice, MIT App Inventor, Eagle, Fusion 360, Cura & Ultimaker3, Jupyter, PyCharm CE, MATLAB
- **Languages:** Verilog, Python
- **Management Tool(s):** Microsoft Office Suite, Pages, Keynote, JIRA