KISHOR KAPHLE

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THE STORY

I am currently working as a quality control analyst in a biotech company. But my true passion and the greatest strength lies in engineering design and the computational simulation of Multiphysics systems. To address this conflict, for the last few years, I have been diligently honing and enriching my skill sets. And now I am confident that I possess the aptitude, tenacity, and necessary background to professionally transition into the domain of my interest. Therefore, I am seeking a career in engineering modeling, simulation, and computation to solve complex technical challenges. I will bring a multitude of transferable skillsets, rich interdisciplinary background, solid work commitment and refined enthusiasm in the job.

WORK EXPERIENCES

Quality Control Analyst II, Aldevron, Fargo, ND (Jun 2024 to Present)

- Identify Out of Specification results, Quality Events/Deviation, and initiate Investigation and technical writing to perform Root Cause Analysis, e-CIRCA, and CAPA
- Function as a supporting analyst in qualification/validation of methods as needed to support the transfer of methodology from Method Validation to QC Laboratory
- Perform advanced microbiology, environmental monitoring, and biochemistry qualitative and quantitative assays
- Perform routine use & maintenance of GMP bioinstrumentations such as BSCs, incubators, clean room isolators, growth direct system, spectroscopy machines.

Quality Control Technician I, Aldevron, Fargo, ND (Mar 2023 to Jun 2024)

- Performed quality control tests and experiments on raw materials, in-process, stability lot, and finished products for qualitative and quantitative assessments: achieved 100% TAT.
- Operated, calibrated, and maintained GMP testing equipment and stations: ensured compliance.
- Continuously developed deeper understanding and expertise in cGMP, GDP, ISO standards, USP, FDA, Lean, and six sigma.
- Actively participated in revamping associated eight SOPs, ten forms, processes, and data management systems: significantly reduced invalids and OOSs.

Graduate Research Assistant, North Dakota State University, Fargo, ND (May 2021 to Aug 2022)

- Functioned as technical point-person by executing engineering design, fabrication, and testing using MATLAB, LabVIEW, SolidWorks, 3D printing, programming, mathematical models, function generators, oscilloscope, and multimeter probing.
- Accomplished seven independent and two collaborative research projects utilizing fluorescence microscope, ImageJ, microfluidics, flow cytometer, FlowJo, impedance spectroscopy, biosafety cabinets adhering to SOPs, good laboratory practices, and first principle thinking.

Artificial Intelligence Intern, Inspiring Lab, Kathmandu, Nepal (Oct 2020 to Jan 2021)

- Excelled underlying mathematics like linear algebra, probability, etc., for machine learning algorithms to master supervised and unsupervised algorithms by doing multiple micro projects.
- Completed basics of Linux, python, and practical coding practices with examples to contribute to two ongoing ML software development eventually.

Electrical Engineer, Government of Nepal, Kritipur, Nepal (Jan 2019 to Jul 2019)

- Resolved technical problems in electronics and electrical systems by utilizing expertise in circuit analysis, ICs, root cause analysis, multimeter probing, and numerical calculations.
- Accomplished two bid evaluations and procurements with required documentation like SOPs, user manual, datasheets, etc., demonstrating proficiency in technical assessment and report writing.
- Completed installation of +50 science exhibits encompassing timely quality and validation tests.
- Designed and developed four science exhibits from scratch by using 3D modeling, PCB design, Arduino, electrical wiring, and automation.

EDUCATION

Master of Science in Electrical and Computer Engineering, North Dakota State University, Fargo, ND

- Courses: Fluid Mechanics for Nano/Biotechnology, Applied Electromagnetism, Semiconductor Devices, Advanced Statistics, Applied Machine Learning, Optics for Scientist and Engineers, Biomedical Engineering, Cardiovascular Engineering II. GPA: 4.0/4.0.
- Teaching Assistantship: Electric Circuit-I, Digital Logics.
- Leadership: Served as a social media coordinator for NDSU student community.

Bachelor of Engineering in Electrical Engineering, IOE Pulchowk Campus, TU, Lalitpur, Nepal

- Courses: Electric Machine Design-I&II, Advanced Power Electronics, Instrumentations, Advanced Control Systems, Electric Circuit-I&II, Electrical Utilization and Traction Systems, Electrical System and Load Management, Microprocessor I&II, Artificial Neural Network, C++, C.
- Leadership: Served as electrical club president and mentored more than ten electrical and electronics projects.

SKILLSETS

- Proficient in COMSOL Multiphysics, SIMULINK, SolidWorks, AutoCAD
- Working knowledge of programming languages such as Python, MATLAB, C/C++
- Project experience in Automation, Data Scraping, Cleaning, and Optimization
- Expertise in Modeling of MEMS, Control System Design, Electromagnetism, Fluid mechanics, Sensors
- Experience with Engineering Principles, FEM, NM, CFD, SAW, Thermodynamics, System Optimization
- Advanced understanding of Electronic/Electrical Machine Design, Digital & Analog Singal Processing
- Expertise in Quality Control, Quality Assurance, and Regulatory Standards
- Proficiency in Technical Reading and Writing

PROJECTS

- **Development of a novel magnetic field calculation formula and visualization System using Engineering physics and MATLAB computation**
  Tools: Mathematical formulation, electrical hardware, MATLAB, Mathematica
  Work: Researched and mathematically developed a simpler formula and standalone MATLAB user-friendly app to calculate and visualize magnetic field strength plot for electromagnets and permanent magnets for electrical machine design and development. Research finding published in a peer-reviewed journal (link).

- **Modeling of Fuzzy Logic Controller for regenerative braking system in electric vehicle**
  Tools: Electric Motors Design, Power Electronics, Circuit Theory, Control System, MATLAB, SIMULINK

Work: Developed Fuzzy Logic Controller Design for maximum regenerative power tracking at different speeds of wheels and database generation using MATLAB/SIMULINK simulation for the enhancement of efficiency of EV.

- **Modeling of wind-solar hybrid power and load distribution system and a case study**
  Tools: Survey, Electrical Load Analysis, MATLAB/SIMULINK, Power System Distribution, PID controller, Advanced Power Electronics
  Work: A case study, modelling, and efficacy recommendation of wind-solar hybrid system with installed capacity of 20 kW wind turbines complimented by 15kW peak solar PV panels with battery storage system in a rural community. Project presented in renewable energy conference and published in a peer-reviewed journal (link).

- **Algorithm development and hardware implementation of face detection and recognition system**
  Tools: Python programming, CNN models, OpenCV, Tkinter, Pygame
  Work: Developed a Machine learning pipeline for face detection, capturing, and recognizing experimenting various tools like MTCNN, HaarCascade, and FaceNet, SVM, and cosine similarity score. This prototype allows adding new users and pictures for recognition next time.

- **Prototype development of DEP-based detection and trapping of gDNA from electrically lysed WBCs on a customized biochip**
  Tools: COMSOL Multiphysics, MATLAB, LabView, electric circuit theory, advanced microscopy, python programming, data analysis, and photolithography.
  Work: Developed a full system for electrokinetic driven blood cell lysis and nucleic acid detection and manipulation for point-of-care biotechnology application; published in special edition of biosensors journal (link).

- **Algorithmic system development for cancer detection by mathematical modeling of cells and exosomes using MATLAB**
  Tools: Fractional order system, Optimization Function, Curve fitting, data analysis, MATLAB Coding, and electric circuit theory.
  Work: Accomplished a research project on the development of futuristic concept of cancer detection using electrical modeling of cells and exosomes with impedance analysis data for next-generation biomedical applications (*manuscript writing*).

- **Algorithm development for molecular dynamic analysis of cancer drug delivery system using python programming**
  Tools: MDA Python programming package, mathematical modeling
  Work: Completed an inter-disciplinary team to develop concept and python algorithm for molecular dynamic analysis of cancer drug delivery system (link).

- **Innovation of low-cost, high-throughput, ac-electrohydrodynamic-based microparticle separation device for biomedical applications**
  Tools: COMSOL Multiphysics, AutoCAD, MATLAB, Python, data analysis, system optimization, rapid prototyping.
  Work: Developed a touch-free, electric, semi-automatic, high-speed microparticle chromatographic separator for therapeutic use (*drafting patent*).