Moin Khwaja

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SKILLS

Engineering

- Python (FLASK), JavaScript (node, react, ES6), HTML/CSS, Pascal, GitHub/GitBash
- PLC, Ladder Logic, Serial and Analog Devices
- Solidworks, AutoCAD
- P&ID Design, ASPEN+
- JMP

Lab

- TFF Protein Purification, Buffer Preparation
- Gas Chromatography, Spectrophotometry, In-situ IR and Raman, NMR, Karl Fisher, DSC
- Laser Diffraction, Rheology, SEM
- TLC, Crystallization, Rotary Evaporator

Languages

- Conversational in Japanese and Urdu

EDUCATION

Northeastern University

July 2015 – August 2019

BSc in Chemical Engineering

Minor in Japanese Language

Experience

ELEKTROFI | Engineer II | Boston, MA | September 2019 – Current

- Researched, characterized, and scaled up novel biologics suspension technology from lab scale (10mg) to pilot plant (100g) and working on developing Ph1 process (10kg).
- Formulated biologics using DoE to find optimal protein stability over microparticle processing
- Preformed analytical method development for product analysis (GC-FID, rheology, laser diffraction)
- Built prototype fittings and pieces using Solidworks and Form2 3D printer
- Automated and monitored pilot plant and scaled down models using PLCs
- Built web app using Flask to control PLC and the underlying ladder logic
- Implemented RESTful API to efficiently send data from the pilot-plant sensors to the JavaScript frontend
- Utilized ELNs like Benchling and wrote technical reports detailing experiments
- Trained and mentored junior engineers and co-ops on various aspects of process development
- Managed chemical waste and directed lab personnel on waste handling

Nalas | Chemical Engineer Co-op | Centerbrook, CT | Jan 2019 – June 2019

- Researched synthesis and process development of small molecules to scale up from lab scale to kilo lab
- Transformed batch chemistry into continuous flow chemistry processes using flow reactors and custom-built systems
- Worked with in-situ IR and Ramen to track reaction kinetics

Sigma-Aldrich | Chemistry Co-op | Natick, MA | July 2017 – December 2017

- Preformed multi-step synthesis, purification, and characterization of bioactive small molecules
- Brought 5 new molecules to market, and produced 20 molecules to restock online supply
- Preformed NMR to analyze structures of purified molecules

Projects

Portfolio Website: Built a single page portfolio website using React utilizing dynamic components and CSS transitions

Self-Healing Fabrics (Capstone 2): Designed manufacturing process for self-healing protein technology to be used in fabrics

C6H5Cl Production Sim (Capstone 1): ASPEN+ model containing distillation columns, CSTRs, heat exchangers, and absorbers

Reverse Osmosis System (Process Control): Built Simulink model and developed transfer functions for a reverse osmosis system

References available upon request