

Jake Bilyk, MS

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Multitalented scientist specializing in laboratory and manufacturing facilities. Rapid learner driven to enhance accuracy, efficiency, and quality of life on-site. Proven ability to execute tasks leading to the success of multimillion dollar projects. Exceptional relationship manager focused on driving innovation alongside policy adherence. Looking for a long-term position at a STEM based organization on the Big Island of Hawaii.

Accomplishments

- Repaired priceless optics on the world's most scientifically productive optical-IR telescopes.
- Designed and manufactured custom components that assisted in SOP accuracy at two previous positions.
- Led Lean efforts at Pace Analytical that can reduce paid-sample turnaround times by 12+ hours.
- Graduated with great distinction from UCSD while working part-time or full-time positions off-campus.
- Performed cutting-edge research of lithium-ion battery anodes during initial silicon-anode wave.

Skill Profile

Precision hardware	Quality control	SOP execution	Inventory management
Instrumental analysis	Data analysis	Team meetings	Microsoft Office
Safety training	Lean & 5S Principles	CAPA and NC Documentation	Waste management

Engineering Skills

Manufacturing line	Laboratory awareness	GD&T	Electrical troubleshooting
Technical writing	CAD modeling	Peer collaboration	Product research
Hazmat handling	SOP drafting	Analytical chemistry	Board presentations
Micro-tooling	3D printers, C/C++ basics	Machine shop equipment	Front-End Web
Python 3 basics	MATLAB basics	P&ID drawings	Lifelong learning

Professional Experience

Scientist (PFAS, Analytical Chemistry) | Pace Analytical, Minneapolis MN September 2022 – August 2023

Pace Analytical is a nation-wide environmental testing company that produces reliable assays of many medias adherent to EPA and DOD policies.

Played an important role in shrinking sample back-log by a factor of ten after the first two quarters. Quickly adopted role as waste management leader and automated disposal steps. Reported the LDM to management and facilitated installations.

- Processed and analyzed client samples (water, solids, tissues) to quantify PFAS concentrations. Conducted EPA 537.1 solid phase extraction experiments and LC-MS preparation.
- Documented and recorded process variations during assessment of complex matrices. Coordinated with project managers to eliminate matrix related issues and instrument down-time.
- Redesigned portable vacuum systems and implemented safer standard handling practices. Added pre-emptive inspections and tests to extraction equipment that eliminated variations in technician productivity by ~4 hours.
- Operated cryo-mill and liquid nitrogen systems for polymer milling samples.
- Frequent interdepartmental cross-over and embraced demand fluctuations.

Scientist (BD Biosciences, 6-mo Contract) | Becton-Dickinson, San Diego CA May 2021 – October 2021

Becton-Dickinson is a global medical device company that produces some of the world's hospital essentials and innovative biomedical reagents.

Generated data that green-lit the consumer-scale production of eleven new antibodies. Worked long or odd hours to maximize instrument accessibility and cell vitality. Built new templates for capstone project that streamlined coherent analyses. Attended ~50% of optional overtime days to assist with packaging and shipping products.

- Followed documented procedures regarding precipitation experiments, cell culturing, tissue preparation, staining, cell media production, liquid nitrogen handling, and flow cytometer operation.
- Performed instrument maintenance and flow cytometry experiments for new product characterization.
- Executed relevant follow-up experiments to verify results or make informed experiment adjustments.
- Trained colleagues on instrument operation, software utilization, and presentation fundamentals.
- Ran pilot scale synthesis of nano-Au colloids for medical test devices.
- Coordinated with team of ~20 people to facilitate instrument scheduling.

Engineering Technician (Primary Optics) | WM Keck Observatory, Kamuela HI September 2016 – May 2020

WMKO is an educational institution which houses the world's most scientifically productive optical and infrared telescopes.

Successfully re-manufactured the glass-on-alloy mounts of Keck's primary mirror system. These priceless ZERODUR mirrors required aerospace-grade accuracy in the removal of fractures and installation of newly engineered parts. This position cultivated my knowledge in clean room etiquette, teamwork, and the definition of quality engineering.

- Mastered stepwise mechanical/chemical tasks with signed buyoffs and detailed notes under timed conditions.
- Interpreted engineering drawings and assembled critical mounting hardware using custom jigs, micro calipers, torque wrenches, machine levels, and surface preparation tools.
- Recorded micron-scale positions of mirror assembly components using Radian API Laser metrology package.
- Repeatedly inspected off-the-shelf parts and custom ordered components using microscope and comparator.
- Worked extensively in hazmat PPE when using hydrofluoric acid solutions to etch glass surfaces.
- Frequently participated in segment transportation and summit activities with positive altitude experiences.
- Earned "Extra-Mile Award - 2017" for participating in rapid construction of clean room on Mauna Kea summit.

R&D Chemist (Silicon-anode LIBs) | 3M, Maplewood MN September 2015 – September 2016

3M is a well-known materials and manufacturing conglomerate. They have had a successful line of battery enhancement materials for decades.

Made strong conclusions about several parameters in the 3M silicon-anode alloy. Identified optimal anode thickness and electrolyte recipe leading to cycle-life stability. Probed performance of graphitized nano-silicon in novel alloy.

- Coordinated with supervisor via OneDrive to design cell experiments that investigated effects of electrolyte composition. Assembled dozens of cell batches for cycling studies and presented performance data.
- Operated JEOL JSM 700 series SEM to gather post-mortem anode structure imagery and interpreted EDX spectrum to validate cell-failure mechanisms.
- Synthesized electrode materials via ball-milling according to customer performance requirements.
- Successfully coated nano-Si particles with graphite/SiC via CVD process using ethylene gas as carbon source and initiated coating optimization studies.
- Validated new lots of active material precursors and in-house alloys via XRD, BET, and electrochemical tests.

Other Relevant Positions

Lead Tutor STEM | College of St. Scholastica, Duluth MN 2013 – 2015

Analytical Chemistry TA | College of St. Scholastica, Duluth MN 2013 – 2015

Seasonal Maintenance Technician | City of Minneapolis, MN 2012 – 2015

Maintained chemistry of 10,000 hectoliter water park using SCADA and manual testing.

Research Assistant (Metal-Organic Framework Synthesis) | College of St. Scholastica, Duluth MN 2013 – 2014

Academics and Professional Training

Full-Stack Engineer Course, August 2023 – Present
www.codecademy.com/

Master of Science – Materials Engineering, 2020 - 2022
University of California – San Diego, CA

Certified SolidWorks Associate, 2021
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Bachelor of Science – Chemistry, 2015
College of St. Scholastica – Duluth, MN

Memberships and Awards

American Chemical Society, 2012 – Present

CodeCademy Pro, 2021 – Present

Fusion360 Individual User, 2022 – Present

St. Timothy Kirby Social Justice Scholar, 2011 – 2015

Benedictine Merit Scholar, 2011 – 2015

St. Scholastica Football Team, 2011 – 2013

Students Today, Leader Forever, 2011 - 2015