

# Scotty Highlander

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## Education

**B.S. in Chemical Engineering** University of California –Riverside (UCR) June 2023

- **GPA:** 3.2/4.0
  - **Relevant Coursework:** Engineering Modeling & Analysis, Process Control, Chemical Engineering Laboratory, Fluid Dynamics
  - **Awards:** Dean's Honor List (2021, 2022), Bourns Foundation Engineering Scholarship
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## Technical Skills

**Software:** Microsoft Office (Excel, Word, PowerPoint), Google Suite, AutoCAD, AutoSketch, SuperPro Designer, Visio

**Programming & Modeling:** MATLAB, Python, C/C++, Aspen, PRO/II

**Analytical Instruments:** IR Spectrometer, UV-Vis Spectrometer, Liquid Chromatography, Gas Chromatography

**Laboratory Techniques:** Organic Synthesis, Purification, Titration, Distillation, Rotary Evaporation, Filtration, Crystallization, Centrifugation, Extraction, pH Measurement, Spectroscopy, Chromatography

**Process Techniques:** Process Design, Process Control Systems, Modeling & Simulation

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## Research Experience

**Undergraduate Research Assistant** Biomaterials Lab, UCR June 2022-June 2023

- Investigated surface treatment methods of Magnesium alloys for orthopedic applications
  - Conducted chemical etching tests on alloy surfaces, optimizing XYZ performance by 5%
  - Collaborated with 3 graduate research assistants on various biomedical R&D projects
  - Utilized XYZ equipment to perform exterior membrane modifications on Titanium implants, enhancing the antibacterial and osteogenic properties.
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## Laboratory Experience

**Chemistry Laboratory Courses, UCR** (Tailor to the specific lab course) September 2020-June 2022

- Conducted experiments using UV-Vis, IR, TLC, and GC and analyzed spectrum data
  - Composed written technical reports, including experimental procedures, data analysis, results and conclusion
  - Complied with laboratory safety protocols for hazardous materials handling and experiment standard operating procedures (SOPs)
  - Gained 2+ years of hands-on lab experience through courses in General Chemistry, Organic Chemistry, and Chemical Engineering Lab
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## Projects

**Chemical Process Design** Senior Design Project, UCR April 2023-June 2023

- Designed and simulated a pilot-scale chemical plant for MTBE synthesis (100,000 metric tons/year) using SuperPro Designer, PRO/II, and Visio.
  - Developed process documentation including Flow Sheets, Piping and Instrumentation Diagrams (P&IDs), and control strategies.
  - Optimized production efficiency and economics through process control methods while prioritizing risk management.
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## Leadership Experience

**Treasurer** American Institute of Chemical Engineers (AIChE), UCR March 2023-June 2023

- Maintained records of bank statements, business transactions, receipts, and reimbursements
- Coordinated 5 fundraising initiatives including sponsorship outreach, financial proposals, and merchandise sales, increasing funds by over \$3000.