

Eliot A.F. Smith — Electroanalytical Chemist

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Skills Summary

Demonstrated proficiency in:

- *Scheduling and time management*
- *Capacity to motivate through leadership*
- *Customer and student interaction in technical education and problem resolution issues*
- *Mediation and conflict resolution*
- *Strengthening employee relations*
- *Effectively teaching complex subjects*
- *Disseminating policy and regulations as needed by employees*
- *Volunteer work—including managing, administrating and educating upwards of 400 teens and adults plus a staff of inexperienced teachers in a weekly education program.*
- *Management of technology resources*
- *Task organization through delegation*
- *Goal oriented development, implementation and completion*
- *Basic accounting and inventory control*
- *Eagerness in developing new skills*
- *Equipment maintenance*
- *Strong desire to exceed expectations within established boundaries and*

Experience

SAN DIEGO STATE UNIVERSITY (SDSU), DEPARTMENT OF CHEMISTRY, SAN DIEGO, CALIFORNIA 8/1993 – 8/2002

Lead Research Associate

5/1997 – 8/2002

Directed, trained and supervised research team for electroanalytical research group that merged:

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|-----------------------|------------------------|----------------------------|
| • <i>Chemical</i> | • <i>Technological</i> | • <i>Team Building and</i> |
| • <i>Instrumental</i> | • <i>Communication</i> | • <i>Managerial skills</i> |
| • <i>Mathematical</i> | • <i>Training</i> | |
- while continuing personal research responsibilities*

Personal research accomplishments include:

- *Increased sensitivity of cyclic voltammetry (CV) process by 30% using analog/digital process*
- *Developed more reliable analog internal resistance technique over digital process*
- *Increased sensitivity of infrared process by 50% through instrumentation & cell design*
- *More than doubled the number of types of experiments readily available*
- *Increased complexity of experiments to enhance scope and reproducibility*
- *Awarded a research internship, 8/1998–5/1999*

Areas of research included:

Electrochemistry—

- *Organic cyclophane/aromatic and organic hydrogen-bonding binder/receptor systems including construction of common and specialized electrodes*
- *Developed methodology for the determination of thermodynamic and kinetic information through digital simulation and statistical fitting of experimental results for binder/receptor systems*
- *Designed Fourier-Transform infrared (FTIR) optically transparent thin-layer electrode (OTTLE) spectroelectrochemistry cell for simultaneous infrared and electrochemical experimentation by cyclic voltammetry and chronoamperometry*
- *Studied organometallic systems with electroactive ligands*

Computational Chemistry—

- *Explained, resolved or predicted results of electrochemistry research using ab initio, semi-empirical and customized configurations and techniques using Gaussian, Spartan, CAChe and other software packages on SGIs, PCs, and Macs and San Diego Supercomputer Crays*
- *Designed and programmed electrochemistry software specific to research needs*

Experience (cont.)

SDSU DEPARTMENT OF CHEMISTRY, SAN DIEGO, CALIFORNIA (cont.) 8/1993 – 8/2002

Lead Research Associate (cont.) 5/1997 – 8/2002

Areas of research (cont.):

Analytical Techniques—

- *Effectively utilized predominantly Cyclic Voltammetry (CV), Fourier Transform Infrared (FTIR), and Nuclear Magnetic Resonance (NMR) techniques*

Organic Synthesis—

- *Applied standard and Schlenk techniques in the design and replication of large, organic electroactive molecules*

Research Associate 8/1993 – 5/1997

- *Developed techniques and implemented plans to resolve research issues*
- *Refined research strategies to explain results to achieve short-term and long-term goals*
- *Developed new goals based on unexpected reproducible results*
- *Designed and constructed new equipment or adapted existing equipment to meet research needs*

UNIVERSITY OF SOUTHERN MAINE, DEPARTMENT OF CHEMISTRY, 9/1989 – 5/1992
Portland, Maine

Undergraduate Research Assistant

- *Analytical Research - Primary responsibilities included*
 - *Standardizing acid, base and other solutions in large quantities*
 - *Determining the amount of Chromium that adhered to DNA in various conditions*
- *Synthesis of Carbon/Silicon chains*
 - *Chains are links between porphyrins to create a cage to align empty d-z² orbitals in Titanium*
 - *Developed synthesis technique under inert atmosphere with functional group protection*

BROOKHAVEN NATIONAL LABORATORY, 5/1991 – 9/1991
Upton, New York

Research Fellow

- *Nuclear Chemistry research involving*
 - *Isotopic abundances*
 - *Activation radiation*
 - *Nuclear Power production*
 - *Isotopic labeling*

Education

SAN DIEGO STATE UNIVERSITY/UNIVERSITY OF CALIFORNIA, SAN 8/1992 – 8/2002
DIEGO, SAN DIEGO, CALIFORNIA

Post-Master's Degree Research,
Master's Degree in Chemistry—Electrochemistry, GPA: 3.56

UNIVERSITY OF SOUTHERN MAINE, PORTLAND, MAINE 5/1989 – 8/1992
Bachelor's Degree in Chemistry—Emphasis in Math and Computer Science, GPA: 3.60

BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK 5/1991 – 9/1991
Nuclear Material Certifications—Nuclear Chemistry

Specific Proficiencies

<i>Existing Abilities</i>	<i>Skill Level</i>	<i>Experience</i>
Teaching/Training	Expert	14 Years
Cyclic Voltammetry (CV)	Expert	10 Years
Software specific to instrumental techniques – FTIR, CV, NMR, ...	Expert	10 Years
MS Office Premium – Word, Excel, Outlook, PowerPoint, PhotoDraw, ...	Expert	10 Years
Presentations/Public Speaking	Intermediate	11 Years
Wet Lab Techniques including Schlenk	Intermediate	10 Years
Instrumental Techniques – predominantly FTIR	Intermediate	4 Years
American Sign Language	Beginner	2 Years