

Nichole Sullivan
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Work Experience

2015 - Present

G-Technology Group, Alexandria, VA

Chief Operating Officer (COO) & Research Engineer

- G-Technology Group is the producer of Sonar Glasses, a new mobility assistive product for the blind and visually impaired, and secure private servers for small businesses needing to meet ITAR and NIST requirements.
- Leader of Sonar Glasses product development. New developments are based on customer feedback and our relationship with the blind community.
- Promoted to COO of the company after two month employment and developed skills to manage widely different personality types.
- Performed customer and public relations including; TV appearances, podcast and Tech Talk interviews, and customer service/development questions.
- Research included: hardware and software development, Linux server building, configuring, maintaining, and on-site installation.

N5 Sensors Inc., Rockville, MD

2014 - 2015

Research Engineer and Business Development

- At the time of employment N5 was a 5 employee start-up company commercializing chip-scale gas sensors technology for industrial, environmental, and safety monitoring.
- N5 received many honorary and funding awards because of my contributions including
 - 3 Small Business Innovation Research grants with multiple applications still pending
 - Maryland Incubator Company of the Year Finalist
 - NASA Tech Briefs Create the Future Award for the Aerospace & Defense category
- This was a dynamic environment in which I performed continually changing duties as needed including; grant writing, multimedia management, web-site design, public speaking, and company promoting.
- Leader and architect of the testing facility which included experimental designs, innovations of gas sensor materials, data analysis, prototype design, and scientific writing.

Education

Ph.D., Candidate, all but dissertation

2009 - 2014

The Pennsylvania State University, University Park, PA

Advisor: David Allara

Thesis topic: Studies of Molecular Assembly and Chemistry
in Confined Geometries

B.S., Chemistry (2009) with Honors

2007 - 2009

B.S., BioChemistry (2009)

Illinois State University Bloomington, IL

Minors: Mathematics and Biology

A.S. Degree in Chemistry

2005 - 2007

John A. Logan College, Carterville, IL

Industrial Research Partners

Titan Spine, State College, PA
Surface Characterization Scientist

2012 - 2013

- Investigated Titan Spine's proprietary surface technology and how it actively promotes the bone fusion process.
- Examined the fundamental properties of rough and smooth titanium alloy surfaces to provide a better understanding of the optimal environment and implant cleaning procedures for osteoblasts adhesion.
- Applied numerous surface characterization techniques to study the relationship between osteoblast adhesion, physical topography, and surface chemistry.
- Obtained and analyzed data for patents and FDA requests.

Technical Skills

- Adept with SEM, AFM, XPS, AES, FTIR, Raman, Optical Profilometry, Ellipsometry, Contact Angle, QCM, zeta-potential, and GISAXS
- Proficient with thin film deposition via thermal, e-beam, ion-beam and high vacuum systems
- Substrate cleaning via chemical etchants, UV-ozone cleaning, plasma cleaning
- Expert at the maintenance, troubleshooting and repair of instruments
- Experience in numerous computer programs and languages e.g. Fortran, C/C++, Mathematica, Labview

Research Experience

Doctoral Program

- Developed procedure for synthesis of polyacetylene molecular brushes on a planar surface and along micro-structured optical fibers (MOFs) pore surfaces via acetylene gas
- Experimentally and computationally resolved the bonding coordination of cyanide on gold surfaces and the adsorbed cyanide electronic structure
- Characterized the thickness, density, elastic modulus, and viscosity of five proteins adsorbed on hydrophobic, hydrophilic and charged surfaces
- Experimentally determined surface coordination of bi-functional carboxylic acids to highly active alumina surfaces and computationally determined the adsorbate structure and orientation.
- Functionalized and developed surface for Grazing Incident Small Angle Scattering (GISAXS) scattering on the photosystem I (PSI) protein.

Leadership and Personal Skills

- Public outreach for the Center for Nanoscale Science and Women in Bio
- Practiced at grants writing technical documents such as standard operating procedures and specification sheets
- Recovered a lab which was threatened to be shut down for safety violations and clutter
- Designed and build heaters, sample holders, thermocouples, shutter mechanisms, vacuum chamber port designation and polished, drilled, tapped, and metal coated mirrors for FTIR optics