Andrew Michaelson

https://www.linkedin.com/in/andrew-michaelson - 1.4 million views
Andy@Eturnum.com 617-719-2156 cell
20 Child Street, Cambridge MA

Education

Johns Hopkins University, Remote and Part-Time
Master of Business Administration (Expected) **May 2027**

Northeastern University, Boston, MA

Master of Science in Bioengineering	GPA 3.614	**May 2013**
Professional Science Master in Bioinformatics	GPA 3.667	**May 2010**
Post-baccalaureate B.S. in Physics		**May 2007**
B.S. in Biology and Mathematics, with a minor in Chemistry		**May 2004**

Relevant Work Experience

Eturnum Biotechnologies, Cambridge, MA **March 2019 – Present**
CEO & Scientific Manager for Research & Development

- Directing R&D, Conducting Deep Learning Research with Python for Leukemia & molecular modeling with Chimera
- SEO optimization and Analysis for Advertisements & Commercials
- Creating music and videos for advertising using Logic Pro X and Davinci Resolve
- Prepared & Submitted SBIR Phase I research proposal to NIH for Leukemia based on Deep Learning with Python and Molecular Modeling with a budget of $400,000.00
- Prepared & Submitted Pre-IND to the FDA for new method of treatment of Covid-19
- Drafting of Provisional Patent using The Invent + Patent System of IPWatchDog, and preparing new homeopathics

Painless Patenting – Per Diem, remote, Boston, MA **April 2024 – Present**
Patent & AI Consultant for Ed Kelley

- Marketing and development of Python programs with ChatGPT for patent drafting and research of prior art

Quantum, Design, & Safety, Flushing, Queens, NY
Manager for Kishowar Parvez **May 2018 – Mar 2020**

- Managed external site safety managers at construction sites, and managed members of the office, took care of normal operations and emergencies when the President of the company was away
- Prepared numbers and documentation for successful 2-million-dollar bank loan
- Prepared, wrote, and submitted documentation of over 300 pages to launch IACET and Department of Buildings accredited site safety training school
- Coded and used Python program to do accounting of invoices
- Design of site safety plans in AutoCAD for sites in NYC for facade repair and building construction
- Visited sites in NYC to take photos, measurements, and speak with clients about placement of sidewalk sheds, pipe scaffolding, outrigger scaffolds, roof protection, & roof protection
- Visualization and collection of data from the Department of Business using Cytoscape and Python

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SUNY Farmingdale, Farmingdale, Long Island, NY **Jan 2016 – Jun 2019**
Adjunct Assistant Professor & Independent PI of my own laboratory in the Biology Department and Research Supervisor for CSTEP & STEP Programs

- Taught students Advanced Bioinformatics – topics included: PubMed, annotating genomic and mRNA sequences, sequence and multiple alignment, protein sequences, professional citation, protein domains, phylogeny tree construction, DNA sequencing technologies, and next-generation sequencing techniques
- Taught students Introductory Biology – topics included: DNA, RNA, proteins, genetic engineering and analysis, history of important scientists, microbiology techniques, plant biotechnology, animal biotechnology, genomics, medical biotechnology
- Research Supervisor for Bioinformatics students, CSTEP, and STEP students.
- Performed & taught research on molecular modeling for Primary Polycythemia Vera & Dentin repair in my laboratory.
- Taught and conducted research with Python, Statistics, Molecular Modeling, research methods, AutoCAD, and 3D Printing
- Prepared and submitted research proposals and budgets, reviewed IRB paperwork
- Designed Dentin tissue engineering scaffolds in AutoCAD for research at Brookhaven National Laboratory

Stony Brook University, Stony Brook, Long Island, NY **Aug 2014 – Aug 2018**
Research Scientist with Distinguished Professor Miriam Rafailovich in Material Science and Professor Marcia Simon at the Dental School

- Lecturer and Research Supervisor for Garcia Center for Summer 2015
- Prepared protocols and prepare plastic scaffolds to culture dental pulp stem cells on.
- Prepared proposals for working at Brookhaven National Laboratory.
- Prepared structures to be 3D printed in the Python based program Blender and in AutoCAD.
- Molecular Modeling of Polylactic Acid (PLA) and protein interactions.
- Performed experiments with spincasting, micro-nano 3D printing (Nanoscribe), confocal, SEM & EDX, AFM, and fluorescence microscopy
- Trained doctoral students, master students, undergraduates, and high school students and managed them for experiments
- Prepared protocol and performed experiments with dental pulp stem cells and scaffolds

SUNY Old Westbury, Old Westbury, Long Island, NY **Jan 2018 – May 2018**
Adjunct Professor of the Biological Sciences Department

- Taught students Introductory Biology Laboratory: spectrophotometry, gel electrophoresis, basic microscopy, dialysis bag diffusion, BLAST on NCBI, pH and enzyme analysis, meiosis, mitosis, mendelian genetics, phage mapping and digestion

Stony Brook University, Stony Brook, Long Island, NY **Jan 2015 – May 2015**
Head Teaching Assistant with Professor Danny Bluestein

- Taught students important concepts and equation in Biofluids (Basic continuity equations, Bernoulli's equation, Navier–Stokes, and Reynold's Transport Theorem)

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Stony Brook University, Stony Brook, Long Island, NY **Sep 2014 – Dec 2014**
Teaching Assistant with Professor Lilianne Mujica-Parodi

- Taught students how to use SPSS for Biostatistical Analysis of measurements taken with electrodes (ECG, EEG, EDA, EMG) and Transducers on the human body.
- Trained students on how to prepare independent research projects, choose proper statistical tests, write final papers, and prepare presentations & taught independently several lab lectures

Co-op US Army NSRDEC/Natick Labs, Natick MA **Jun 2014 – Aug 2014**
Engineer in Pathways Program in Systems Equipment Engineering Team Combat Feeding Directorate for Team Leader Bob Bernazzani at the Natick Labs

- Conducted experiments to test food service equipment and prepare synthetic food from hydroxypropyl methylcellulose using equipment k-type thermocouples, omega OM-EL-USB data logger, extech power analyzer, and OM-EL-datapad.
- Wrote test plans for Big Dipper W-500-IS, Randell FX-1RE & Traulsen TE060HR
- Prepared Continuous Product Improvement grant for Heat Ailment Recovery Pack

Northeastern University and Harvard University, Boston, MA **Jul 2011 – May 2014**
Research Scientist with Professor Rebecca Carrier of the Chemical Engineering Department and Research Scientist with Dr. Petr Baranov, Dr. Caio Regatieri, and Professor Michael Young at the Schepens Eye Research Institute

- Conducted experiments to observe substrates: to quantify and qualify results of stem cell development and delivery of the retina using techniques such as: lyophilization, surgical dissection of Bovine, Salmon, Pig, and Xenopus laevis eyes, crosslinking, fluorescent staining, in vitro studies, SEM, BCA, Mammalian Cell Culture, and Confocal Microscopy, Contact Angle Measurement in a Class 1000 cleanroom, Fluorescent Microscopy, immunofluorescent staining, and explant studies
- Trained postdocs, graduate students, master students, undergraduates, and high school students in proper cell techniques, experimental protocols, safety, hazardous waste handling, and proper use of laboratory equipment
- Maintained stock and equipment in the lab, order new equipment, change gas tanks for incubators, clean filters on biological safety cabinet and -80^{o}C freezer, maintenance of water volume within water jacketed incubators
- Prepared of stock, working solutions, protocols, experimental setup, sterilization, and lab cleanup, and responsible for transport of materials from one lab to another, management of website and proteomics analysis
- Developed novel extracellular matrix substrates such as such as: crosslinked Interphotoreceptor Matrix (IPM) scaffolds, biopolymer IPM-PCL scaffolds, and decellularized retina from the retina for stem cell development and delivery
- Developed novel extracellular matrix substrates for stem cell development and delivery
- Conducted experiments to observe substrates: to quantify and qualify results of stem cell development and delivery using techniques such as, crosslinked Interphotoreceptor Matrix (IPM) scaffolds, biopolymer IPM-PCL scaffolds, and decellularized retina from the retina for stem cell development and delivery

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University Tutor, Boston MA **Aug 2013 – Aug 2014**
Independent Tutor for University Tutor

- Tutored students for the GRE and helped them achieve over the 90th percentile in both the quantitative and English sections of the GRE
- Helped students prepare the whole graduate school application and they were accepted into Ivy League Schools
- Prepared students for their courses, exams, homework assignments in Python, Bioinformatics, Molecular Biology, Pathophysiology, GRE, Calculus, and Physics.
- Mentored highschool students for the Massachusetts State Science Fair Competition at MIT in a study on 500 books published on Amazon. The students won an MIT award, a Biogen Idec award, and the distinguished Harvard Book Club award.

Northeastern University, Boston, MA **Jun 2009 – Sep 2011**
Research Scientist with Professor Slava Epstein of the Biology Department

- Developed novel methods for 16s rRNA hereditary comparison using secondary and tertiary modeling, compared fasta sequences of primary level 16s rRNA

Northeastern University, Boston, MA **Aug 2010 – Jun 2011**
Research Scientist with Professor Albert-László Barabási of the Physics Department

- Developed new methods of comparison for topological and functional analysis of proteomic databases for disease identification using Python, statistical analysis, and visualization of networks with Cytoscape
- Developed concepts in controllability of networks

Northeastern University, Boston, MA **Dec 2008 – Sep 2010**
Research Scientist with Professor Mary Jo Ondrechen of the Chemistry Department

- Identified secondary and allosteric active sites with Yasara and simulated molecular dynamics, and charges of residues on proteins
- Found catalytic sites within proteins using Thematics, and defined active sites with Qhull

Northeastern University, Boston, MA **Feb 2008 – Jan 2010**
Research Scientist with Professor Mikhail Malioutov of the Mathematics Department

- Prepared novel normalization techniques for microarray analysis
- Performed work for statistical studies of manuscripts to determine authorship

National Naval Medical Center, Bethesda, MD **May 2008 – Aug 2008**
Research Scientist with Professor Michael Daly at USUHS in the Environmental Biology and Pathology Departments

- Discovered how to achieve survival of *Shewanella putrefaciens* under acute and chronic levels of radiation without genetic engineering
- Cultured antibiotic free bacteria
- Tested bacteria growth and survival under conditions of radiation and media change

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MIT, Cambridge, MA **Jan 2007 – Jun 2008**
Research Scientist with Dr. Maksym Kryvohuz in the Chemistry Department

- Developed protein interaction networks using kinetic models to describe the evolution of networks

Northeastern University, Boston, MA &
Children's Hospital Medical Research, Boston, MA **Jan 2004 – Jan 2007**
Research Assistant with Dr. Judah Folkman, Dr. Sui Huang, Professor Thomas Sherman and Mikhail Malioutov at Children's Hospital Medical Research and the Mathematics Department at Northeastern University

- Modeled the growth of protein interaction networks with differential equations

Children's Hospital Medical Research, Boston, MA **Jun 2003 – Aug 2003**
Research Assistant with Dr. Judah Folkman and Dr. Sui Huang at Children's Hospital Medical Research

- Developed in the language of C a program to find clusters within protein interaction networks

Achievements

Brookhaven National Laboratory **Spring 2018**
Won Grant Proposal to use the Center for Nanofabrication facility for 2 years for the proposal titled Cellular response to the topography of dentin mimicking scaffolds

NNMC/USUHS **Summer 2008**
Discovered how to achieve survival of *Shewanella putrefaciens* under acute and chronic levels of radiation without genetic engineering

SUNY Farmingdale **Jan 2016 – Jun 2019**
The only adjunct professor with the distinction of having my own laboratory to perform independent investigation (with my students) into new treatments for Polycythemia Vera and nerve conduction studies for repair of nerve damage.

Research Proposals

New Small Molecule Treatments for Primary Polycythemia Vera and Related Leukemia: Using Molecular Modeling and Deep Learning to Predict Binding to the Estrogen Receptor **Submitted Winter 2022**
Development of a New Method of Treatment for Covid-19 **Summer 2020**
Cellular response to the topography of dentin mimicking scaffolds **Accepted Spring 2018**
A Targeted Molecular Modeling Approach to Find Novel Treatments for Polycythemia Vera **Submitted Spring 2017**
Cellular Response to substrates that are 3D printed or casted **Submitted Spring 2015**
Development and analysis of decellularized intestinal scaffolds and stem cells in Crohn's disease **Submitted Spring 2013**
The "James" Bond of Sticky Corneas **Submitted Fall 2011**

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Publications

Stony Brook University

W Cui, C Pu, Z Xu, S Cai, J Yang, **A Michaelson**: Bounded link prediction in very large networks Physica A: Statistical Mechanics and its Applications 457, 202-214 **Fall 2016**

Cunlai Pu, Siyuan Li, **Andrew Michaelson**, Jian Yang: Iterative path attacks on networks. Physics Letters A (published) **Spring 2015**

Northeastern University

Joydip Kundu, **Andrew Michaelson**, Petr Baranov, Marco Chiumiento, Tom Nigl, Michael J. Young, Rebecca L. Carrier: Interphotoreceptor matrix based biomaterial: Impact on human retinal progenitor cell attachment and differentiation. Journal of Biomedical Materials Research Part B: Applied Biomaterials. **Winter 2018**

Joydip Kundu, **Andrew Michaelson**, Kristen Talbot, Petr Baranov, Michael J Young, Rebecca L Carrier: Decellularized retinal matrix: natural platforms for human retinal progenitor cell culture. Acta Biomaterialia, 1742-7061 **Winter 2016**

Joydip Kundu, **Andrew Michaelson**, Kristen Talbot, Petr Baranov, Michael J Young, Rebecca L Carrier: Decellularized retinal extracellular matrix (D-REM) based hydrogel for retinal tissue engineering. **Winter 2016**

Petr Baranov, **Andrew Michaelson**, Joydip Kundu, Michael J Young, Rebecca L Carrier: Interphotoreceptor matrix-grafted poly (ε-caprolactone) scaffolds for human photoreceptor differentiation. Journal of Tissue Engineering 5, 2041731414554139 (published) **Spring 2014**

Joydip Kundu, **Andrew Michaelson**, Petr Baranov, Michael J Young, Rebecca L Carrier: Decellularized Retinal Matrix: Biomimetic Substrate for Human Retinal Progenitor Cells. Tissue Engineering Part A 20, S21-S21 (published) **Winter 2014**

Joydip Kundu, **Andrew Michaelson**, Petr Baranov, Michael J Young, Rebecca L Carrier: Chapter 10 Approaches to Cell Delivery: Substrates and Scaffolds for Cell Therapy in the book "Cell-Based Therapy for Retinal Degenerative Disease" Developments in Ophthalmology, DOI: 10.1159/000357369 S. Karger AG | Medical and Scientific Publishers (Published) **Spring 2014**

Cun-Lai Pu, Wen-Jiang Pei, **Andrew Michaelson**: Robustness analysis of network controllability. Physica A: Stat. Mechanics Appl. 391, 4420–4425 (2012). (Published) **Fall 2012**

Posters

Amelia Tisk, Amber Palmer, Nathalie Larin | **Professor Andrew Michaelson** - Ms. Charles | Amityville Memorial High School/E. W. Miles Middle School, Treatment of Polycythemia Vera with Resveratrol and other small molecules. LISEF – Long Island Science and Engineering Fair at the Crest Hollow Country Club in New York (Poster) **Spring 2018**

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Posters

Andrew Michaelson, Bernard Essuman, Kristoffer Kaiser, Simon Lin, Kuan-Che Feng, Christopher Corbo, Katherine Cao, Alice Wu, William Hu, John Mikhail, Indeep Singh, Nara Michaelson, Marcia Simon, Miriam Rafailovich, Cellular response to the topography of dentin mimicking scaffolds, Presented at SUNY Brentwood, NY (Poster) **Spring 2018**

Andrew Michaelson, Bernard Essuman, Kellon Belfon, Christopher Corbo, John Mikhali, Nara Michaelson, Marcia Simon, Miriam Rafailovich, Fibrinogen folding on Polylactic Acid (PLA) sheet, Presented at SUNY Brentwood, NY (Poster) **Spring 2018**

Andrew Michaelson†, Nathalie Larin, Jazmin Ruiz Marcello, Amelia Tisk, Z'Dhanne Williams, Alexa Victor: A Targeted Molecular Modeling Approach to Find Novel Treatments for Polycythemia Vera. 19th Annual STEP Statewide Student Conference (poster) **Spring 2017**

Chris Corbo, Laurie Nussbaum, Elaina Vessella, Jessica Molina, Matthew Brutus, Nick Brutus, Bernard Essuman, Juan Maldonado, John Mikhail, Jeenali Shah, Conrad Dobrowolski, Nara Michaelson, & **Andrew Michaelson PI**: Discovering small molecules as Alternative Treatments to Polycythemia Vera. The SUNY Undergraduate Research Conference (SURC) in Brentwood, New York (poster) **Spring 2017**

Andrew Michaelson, Joydip Kundu, Petr Baranov, Michael Young, Rebecca L Carrier: Interphotoreceptor Matrix based Biomaterial for Retinal Repair Presented at the American Institute of Chemical Engineers (AICHE, poster) in Florida **Spring 2013**

Joydip Kundu, **Andrew Michaelson**, Kristen Talbot, Petr Baranov, Michael J. Young, Rebecca L. Carrier (2013) Biomimetic substrates based on decellularized retinal extra-cellular matrix. 1st International Translational Nanomedicine Conference (ITNANO2013), July 26-28 in Boston, Massachusetts (abstract accepted, poster). **Summer 2013**

Joydip Kundu, **Andrew Michaelson**, Kristen Talbot, Petr Baranov, Michael J. Young, Rebecca L. Carrier (2013) Decellularized retina as cell delivery vehicle for treatment of retinal diseases. Abstract submitted to The Biomedical Engineering Society (BMES) Annual Meeting, September 25-28, 2013 in Seattle, Washington (abstract accepted, poster). **Fall 2013**

Joydip Kundu, **Andrew Michaelson**, Kristen Talbot, Petr Baranov, Michael J. Young, Rebecca L. Carrier (2013) Decellularized retinal matrix as substrates for delivery of human retinal progenitor cells. TERMIS-Americas Conference, November 10-13 in Atlanta, GA **Winter 2013**

Andrew Michaelson, Yujing Wang, Dana Brooks, Slava Epstein: Uncovering the Hidden Relationship Between Biological Organisms by Comparing Shapes of Ribosomal RNA" for work done with Professor Epstein, Presented at the Northeastern University Expo **Spring 2010**

Yujing Wang, **Andrew Michaelson**, Srinivas Somarowthu, Mary Jo Ondrechen: Software for Finding the Geometric Potential, Presented at the Northeastern University Expo **Spring 2010**

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Books

Andrew Michaelson, Saving the Refugee Children of Ukraine and the rest of their lives…
Published 2022

Andrew Michaelson, Alexander Miller, Mastering the New GRE with ChatGPT: The Ultimate Guide to Ace Your Test and Become like the Next Brainy Einstein (In preparation)

Kyu Ah Kim & Andrew Michaelson Mastering the Patent Bar: Comprehensive Preparation Guide for Aspiring Patent Professionals (In preparation)

Andrew Michaelson, Brain and Body Secrets: Making the Transition From Highschool to College (In preparation)

Andrew Michaelson, Nara Michaelson, Katie Donnelly, Bernard Essuman, Gabriela Apparcio, Wendy Escobar, Jeenali Shah, Austin Replogle, & and a Foreword by Nara Michaelson: Inside the Professor's Notebook: Research Protocols and Notes (In preparation)

Papers in preparation

Andrew Michaelson, Vincent Baffour, Tobias Fraßa, Miriam Benezra, Adam Katz, The use of machine learning in personalized cancer treatment

Andrew Michaelson, Vincent Baffour, Tobias Fraßa, Miriam Benezra, Adam Katz, What is the best deep learning algorithm to use when trying to predict the side effects of a new drug?

Andrew Michaelson*, Nara Michaelson, Melody Hermel, David Hermel, Ira Michaelson, John Mikhail, Ly Quoc Trung, Luis Espinoza: Resveratrol Treatment of Polycythemia Vera

Andrew Michaelson, Joydip Kundu, Petr Baranov, Michael J Young, Rebecca L Carrier: Interphotoreceptor Matrix Based Biomaterial for Retinal Repair.

Qiwei Li, **Andrew Michaelson**
Predicting the Next Amazon Bestseller

Andrew Michaelson, Qiwei Li, David Feder, Marcia Simon, Miriam Rafailovich
Spincasting porous PMMA scaffolds for Dentin mineralization

Certifications

Qualifying Certificate in Food Protection, NYC Department of Health and Mental Hygiene
Issued 2021

Advanced Science Research Center (CUNY), Manhattan NY **Expired June 2019**
Supervising non-production chemical laboratories

Certifications

OSHA 10-Hour General Industry (Healthcare) Course **Received Feb 5th, 2019**
Digital Badge, CareerSafe
(https://campus.careersafeonline.com/badges/user/349912393F92DCC1148F61224BDF041F)

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Awards

Dean's Scholarship in recognition of academic excellence and potential impact in business and the Carey Business School at Johns Hopkins University **Summer 2024 – Spring 2027**

Awarded Certificate of Recognition for my contribution to the Collegiate Science and Technology Entry Program (CSTEP) and for my dedication to my students **Spring 2018**

Awarded Certificate of Recognition for my contribution to the Collegiate Science and Technology Entry Program (CSTEP) and for my dedication to my students **Spring 2017**

Won $500.00 Travel Grant to the International Conference on Biomolecular Engineering and AICHE **Spring 2013**

Received the Graduate Professional Student Association Community Enhancement Award for Excellence in Use of Media **Spring 2009**

Received the Faculty Undergraduate Research Institute Scholarship **Spring 2004**

Received the Faculty Undergraduate Research Institute Scholarship **Fall 2004**

Social Activities in the Community

SUNY Farmingdale, Farmingdale, NY **July 21st, 2016**
Gave a lecture on the importance of doing research and directions research can take to incoming freshman

Long Island Science & Engineering Fair (LISEF), Woodbury, NY
March 10th, 2016 & March 15th, 2018
Judge for the Bioinformatics & botanical component of the LISEF

- Judge of the botanical science fair posters
- Judge of the botanical presentations and explanations of highschool students

Queens College, Queens, NY **Jan 6th 2016, Jan 5th 2017, Jan 11th 2018, Jan 4th 2019**
Instructor for the Annual Science Open House for High School Students

- Demonstrated hands on experiment of lemon and tangerine batteries to power LED
- Checked current level of batteries using voltmeter

Extracurricular Activities

- Founder of NUBOTS in 2001, a new extracurricular activity, approved by the Student Government Association at Northeastern University. NUBOTS comprised 162 students from different majors whose goal is to build combat robots. As President, I added an academic component to NUBOTS to work with Capstone groups of senior-level students in Electrical and Computer Engineering where we designed our robot components in Solidworks before implementation.
- NU Hillel: Served on the Social and Religious Committees for three years.

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Extracurricular Activities

- Music: Studied classical and concert piano for nearly 20 years.
- Member of New York Academy of Sciences professional society
- Member of the American Association of Physicists in Medicine.
- Member of the Division of Medical Ethics through Harvard Medical School's Department of Social Medicine.
- Member of the New York Academy of Sciences
- Member of the American Association for the Advancement of Science

Languages

English, Hebrew

Additional Techniques, Databases, and Methods Used in the Classroom or Laboratory Listed by Subject Area:

Biology

ELISA
PCR
RT-PCR
Bacteria plating in liquid and agar media
Spectroscopy
Centrifugation
Gel-electrophoresis
Light Microscopy (oil microscopy under high magnification)
Quantum Dots
Yeast two hybrid
DNA repair technology
Protein Repair technology
Sterilization

Mathematics

n-dimensional calculus
spherical coordinate system
cylindrical coordinate system
polar coordinate system
derivatives
partial derivatives
cross product
dot product
Monte Carlo Method
Queuing Theory
Statistics
- stemplots
- histograms
- boxplots
- Binomial Theorem
- Standard Deviation

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Additional Techniques, Databases, and Methods Used in the Classroom or Laboratory Listed by Subject Area:

Mathematics

- Statistics
  - Correlation
  - Normal Distributions

Physics

- Atomic Force Microscopy
- NMR
- Optical Tweezers
- Logic Gates
- Soldering
- Differential geometry
- Lagrangian
- Hamiltonian
- Calculus of variations
- Equations of Motion
- Optics
- Maxwell's Equations
- Tensors

Chemistry

- Spectroscopy
- High Pressure Liquid Chromatography
- Gas Chromatography
- Thin Layer chromatography
- Liquid chromatography
- Mass-Spectroscopy
- Titration
- Sand bath
- Water bath
- Distillation
- Steam Distillation
- Vacuum Distillation & Sublimation
- Crystallization

Bioinformatics

- mysql
- perl
- c
- Python
- HTML
- CSS
- MATLAB
- Mathematica
- Cytoscape
- Pairwise Sequence Analysis
- Multiple Sequence Analysis

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Additional Techniques, Databases, and Methods Used in the Classroom or Laboratory Listed by Subject Area:

Bioinformatics

- Yasara
- Unix
- Linux
- Friend
- Hidden Markov Model
- Rasmol
- BLAST
- Fasta
- PDBsum
- PDB
- SCOP
- CATH
- NCBI/Pubmed
- Protein Structural Alignment
- Modeller
- Swiss-Model
- Stanford Microarray Database
- Blosum62
- Pam250
- SWISS-PROT
- Chimera
- Autodock
- Chemsketch
- All Microsoft Office applications.
- Working knowledge of Macintosh, Unix, Linux, and Windows operating systems.
- Phylogenetic tree construction methods
  - UPGMA
  - Neighbor Joining
  - Maximum Parsimony
  - Maximum likelihood

Bioengineering

- Systems Biology
  - Interaction Networks (PINs, GINs, …)
  - Scale Free Networks
- Vacuum Dehydration
- Centrifugation
- Dissecting Microscope
- Autoclaving
- Spectroscopy
- Sterile work under a Biohood
- Fluorescent Microscopy
  - Preparation of Zero Length Crosslinkers (EDC/Sulfo-NHS)
  - Preparation of Fluorescent Probes

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Additional Techniques, Databases, and Methods Used in the Classroom or Laboratory Listed by Subject Area:

Bioengineering

- Fluorescent Microscopy
  - Rhodamine Wheat Germ Agglutin
  - Fluorescein Peanut Agglutinin
- Preparation of Fluorescent Probes
  - Hoechst
  - Phalloidin
- Preparation of Silane Compounds (APTS)
- Bicinchoninic Acid (BCA) Assay
- Mammalian Cell Culturing
- Hemocytometer
- Tissue Engineering of Extracellular Matrix (ECM)
- Decellularization
- Lyophilization
- Solubilization
- Coating of Culture Plates
- Scanning Electron Microscope
- Sample Preparation and usage of the machine
- Image Capture
- Media Preparation for Mammalian Cell Culturing
- Explant Studies
- Confocal Microscopy
- Tests for content within extracellular matrices
  - Hydroxyproline Assay
  - Collagen Assay
  - BCA Assay
  - Glycosaminoglycan Assay

Biomedical Engineering

- Spincasting
- Blender
- AutoCAD
- Micro-Nano 3D Printing
- Non-parametric statistics

SEO, Videography, & Marketing

- Procreate
- Google Adwords
- AWS Polly (Computer Generated Voices)
- YouTube Analytics
- DaVinci Resolve 16
- Logic Pro X
- Ahrefs
- Google Trends
- Headline Analyzer
- Videographer for Business Insider for this wedding video (https://youtu.be/g_gluiP9rPQ)

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Additional Techniques, Databases, and Methods Used in the Classroom or Laboratory Listed by Subject Area:

Hobbies

Astronomy with my 8" diameter Schmidt Cassegrain Telescope
3D printing with my resin and extruder 3D printers
Building with an Arduino
YouTube Channel (https://youtu.be/pABHIUVhVIg) to entertain my wife, Dr. Nara Michaelson
Deep Learning in Python
OpenAI ChatGPT version 4o
OpenAI GPT-4 API Developer version for programmers
Sewing with my Janome Heavy Duty Sewing Machine and Singer Embroidery Machine
Knitting with my Addi Express Kingsize Machine
LinkedIn - posting about and discussing mostly scientific articles with my peers with over 1.4 million views on my LinkedIn profile in the last year, over 7900 followers of a mostly scientific audience composed mostly of CEOs, professors, and other scientists