

# Mellon College of Science

## Sample Resumes

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# MCS Resume 1

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## EDUCATION

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Carnegie Mellon University, Pittsburgh, PA  
Bachelor of Science in Biological Sciences, GPA: 3.6  
Minor: Biomedical Engineering

May 2017

## RESEARCH & WORK EXPERIENCE

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Office Assistant – Mellon College of Science Dean's Office, Carnegie Mellon University August 2014 – Present

- Facilitate the operation of a university office through administrative responsibilities and event coordination
- Managed 100 volunteers for MCS Pride Day to assign positions and responsibilities to serve over 500 event attendees

Clinical Research Intern – Atlantic Melanoma Center: Morristown Medical Center, Morristown, NJ June 2014 – August 2014

- Investigated the incidence of BRAF, NRAS, and C-Kit mutations in melanoma patients within the Atlantic Health System
- Conducted a retrospective chart review on 111 patients who underwent oncologic genetic testing
- Studied patient demographics leading to the possible development of certain genetic mutations
- Performed an extensive literature review of medical articles pertaining to melanoma cases and genetic mutations
- Presented trends establishing the foundation of research and results of my study in a comprehensive research article

Phage Hunter – Phage Genomics Research Course, Carnegie Mellon University August 2013 – May 2014

- Identified phage that infects Arthrobacter bacteria
- Streaked, plated, & cultured bacteria and phage
- Used electron microscopy to analyze phage structure
- Used spectroscopy & restriction enzyme analysis to purify phage DNA
- Used bioinformatics to analyze phage genomes and evolutionary history

## LEADERSHIP EXPERIENCE

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NeuroSAC, Board Member, CMU August 2015 – Present

- Plan and organize Carnegie Mellon and community service events to increase camaraderie between Neuroscience majors while giving back to the Pittsburgh community

Secretary, Future Leaders of Science, CMU September 2014 – Present

- Maintain accurate and thorough written records of the proceedings of the organization
- Collaborate with team of 5 officers to organize community service and fundraising events

Junior Community Group Leader, InterVarsity Christian Ministry, CMU January 2014 – May 2014

- Assisted in the planning and implementation of women's Bible study and team-building events

## TECHNICAL SKILLS

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**Research:** Titrametric analysis, cell transformation, making competent cells, enzyme digestions, DNA ligation, DNA synthesis, primer design, SDS gel, mini-prep, spectroscopy, bacterial vector cloning, electroencephalogram subject running, NIH web based training course complete, polymerase chain reaction, high-pressure liquid chromatography, infrared spectroscopy, nuclear magnetic resonance, extraction, gas chromatography, distillation, boiling point determination

**Computer:** Excel, PowerPoint, MiniTab, SPSS

**Language:** Fluent in Spanish

## EXTRACURRICULAR ACTIVITIES

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Alpha Phi Omega, Vice President of Fellowship

September 2013 – Present

Intramural Track Team, Member

January 2013 – Present

Biological Sciences Student Advisory Committee, Member

September 2013 – May 2014

# MCS Resume 2

412-268-2064

<http://openwetware.org/wiki/User:mcsresume2>

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## EDUCATION

Master of Science in Computational Biology	Carnegie Mellon University, Pittsburgh, PA	3.81/4.0	May 2016
Bachelor of Technology in Biotechnology	India Institute of Technology, Madras, India	3.24/4.0	May 2014

**Skills:** C, C++, Python, Java, Perl, SQL, HTML, R, MATLAB, Cytoscape, CellNetAnalyser, COBRA

**Relevant Coursework:** Machine Learning, String Algorithms, Algorithms & Data Structures, Mathematical Modeling and Simulation, Computational Genomics, Phylogenetics, Biostatistics, Bioinformatics, Molecular Biology, Calculus II, Linear Algebra

## PROFESSIONAL EXPERIENCE

**Philips Research, NY, USA, Bioinformatics Summer Intern** May 2014 – Aug 2014

- Designed and implemented a statistical pipeline in R to leverage Breast Cancer Next-Generation Sequencing data by identifying and visualizing coding-long non coding networks with various disparate data overlay
- Conceptualized and developed an R module for a novel visualization of network featured heat maps in Cytoscape
- Submitted a conference paper at IEEE Genomic Signal Processing and Statistics (GENSIPS '13) (Accepted)  
Title: "Identifying RNAseq-based coding-noncoding co-expression interactions in breast cancer"
- Submitted abstract for San Antonio Breast Cancer Symposium (SABCS '13) (Under Review)  
Title: "RNA-seq reveals functional lncRNAs associated with estrogen-receptor status in breast cancer"

**Monsanto Research Centre, Bangalore, India, Bioinformatics and Molecular Biology Intern** Summer 2012

- Developed a Perl module to obtain dynamic visualization of freely available static metabolic networks within a week
- Submitted three successful clones, optimized cell growth and reduced quality check time from 24hrs to 4 hrs

**Centre for Cellular and Molecular Biology, Hyderabad, India, Mathematical Modeling Intern** Summer 2011

- Generated comprehensive MAPK pathway with 65% increase in nodes after referring 12 databases and 75 publications
- Modeled and simulated this pathway in CNA(MATLAB package), identified 2 oncogenes and 1 Tumor suppressor
- Received acknowledgment in Chowdhury et al, Structural and Logical Analysis of a Comprehensive Hedgehog Signaling Pathway to Identify Alternative Drug Targets for Glioma, Colon and Pancreatic Cancer, PLoS ONE (2013)

## RESEARCH EXPERIENCE

**Schwartz Laboratory, Lane Centre for Computational Biology, CMU, Research Assistant** Dec 2014 – Present

- Structured and implemented marker subset identification from microarray data prior to Principal Component Analysis and un-mixing to improve ability for phylogenetic inferences of tumor development
- Recognized subsets of genes (~30 out of ~41000) that gave a better separation in PCA and un-mixing of the subtypes

**Bioinformatics Data integration Practicum, CMU, Technical Lead** Mar 2015 – May 2015

- Developed a cross-platform Java based tool for fast (Parallel processing) alignment-free identification of horizontal gene transfers between various strains of S.Pneumoniae

**Dr. Gromiha, Protein Bioinformatics Laboratory, IITM, Undergraduate Thesis** Dec 2011 – May 2012

- Identified and proposed candidate Protein-RNA complexes that would show different properties in dynamic study evaluated based on analyses of variations in propensities, binding motifs and other sequence properties

**International Genetically Engineered Machines, MIT, Boston Open-Source Project (TEAM: 10)** Jan 2011 – Nov 2011

Computational Biology and Sponsorship Lead

- Developed an online tool for site directed mutagenesis primer design
- Demonstrated a 30 % (maximum) increase in growth rate by reconstruction of pathway and flux balance analysis study
- Raised funds (USD 10,000) for experiments and International conferences

## AWARDS AND PRESENTATIONS

- Awarded the Academic Achievement Fellowship, Carnegie Mellon University, Pittsburgh, PA Aug 2014 – May 2015
- Awards and presentation for Project Title: "P.rex Photonivorous bacteria for Resolution and Expression"
  - Gold, **Massachusetts Institute of Technology, Boston MA** Nov 2013  
International genetically Engineered machines World Championship (iGEM)
  - Asia's Best Safety Commendation and Asia's Best Biobrick (iGEM Asia Regionals) Oct 2012  
iGEM Regionals, **Hong Kong University of Science and Technology, Hong Kong**

**EDUCATION** **Carnegie Mellon University**, Pittsburgh, PA **May 2016**  
**Bachelor of Science in Physics, Applied Physics Track**

**RELEVANT COURSES** Intermediate Optics Lab      Introduction to Materials Science Lab      Fundamentals of Programming  
Electronics Lab      Experimental Physics Lab      Modern Physics Lab  
Mechanical Engineering Lab      Solid State Physics

**RESEARCH EXPERIENCE** **Senior Research**  
**Physics Department, Carnegie Mellon University** **January 2016 – Present**

- Designed an electron tunneling experiment for use in Modern Physics Lab
- Trained in ultra-high vacuum and vacuum deposition techniques
- Trained in the operation and maintenance of mechanical, ion, and cryo vacuum pumps

**SKILLS** Python      C++      FORTRAN  
Interferometry      End Mill/Late machining      SolidWorks 3D modeling

**WORK EXPERIENCE** **Instrumentation & Programming Intern**  
**Brookhaven National Laboratory (BNL), Long Island, NY** **Summer 2014**

- Improved the electrical optical measurements of the Large Synoptic Survey Telescope to be located in Chile
- Studied the characterization and manipulation of next-generation testing for fully depleted Charge Coupled Device (CCD) image sensors under Dr. Ivan Kotov of the Instrumentation Division
- Performed a pocket pumping analysis on CCDs using ds9 software and C++ to locate and identify the cause of electron traps leading to imperfections in images -- with a focus on temperature and timing dependence

**Desk Attendant, Cohon University Center Equipment Desk**  
**Athletics Department, Carnegie Mellon University** **May 2013 – May 2015**

- Interacted with gym patrons and handled inquiries about the facilities, campus, and surrounding area
- Maintained an inventory of athletic equipment and tracked gym usage

**Systems Developer, Snackbot (Human-Computer Interaction Research Project)**  
**Robotics Institute, Carnegie Mellon University** **September 2012 – May 2013**

- Maintained and upgraded SnackBot's capability to interact with customers
- Upgraded the Client Interface and Client Interface Server which simplified the process of transmitting data over sockets
- Improved the functionality of the Dialog Tree Creator which allows users to create unique dialogue trees for SnackBot with no knowledge of programming or the underlying technology

**ACTIVITIES** **Booth Chair & Social Chair**  
**Carnegie Involvement Association Buggy & Carnival** **September 2013 – April 2015**

- Coordinate the planning of infrastructure and construction of a two-story wooden walk through structure that meets international building code, including working electricity and external waterproofing
- Assisted with the design and construction of 3 award winning buggies (soapbox derby)
- Led the restoration of an older buggy and documented procedures for the purpose of educating new members

**Eagle Scout** **May 2012**  
**Boy Scouts of America**

- Senior Patrol Leader in charge of leading 40 scouts during weekly scouting activities and camping trips

# MCS Resume 4

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EDUCATION	<b>Carnegie Mellon University</b>	Pittsburgh, PA
	<b>Bachelor of Science in Mathematical Sciences</b> Concentration: Operations Research and Statistics Minor: Business Administration GPA: 3.0 <b>Mellon College of Science Dean's List High Honors:</b> Spring 2014, Fall 2012	May 2015
	<b>Rome University of the Arts</b> Studies in International Banking, Italian Culture	Rome, Italy Fall 2013
	<b>Actuarial Examinations</b>	
	<ul style="list-style-type: none"><li>• P/1- Probability</li><li>• FM- Financial Mathematics (scheduled)</li></ul>	July 2013 April 2015
SKILLS	<b>Computer:</b> Excel, Word, PowerPoint <b>Software:</b> R, Ruby <b>Language:</b> Conversant in Spanish and Italian	
WORK EXPERIENCE	<b>Carnegie Mellon University- Cluster Management Facilities Assistant</b>	Pittsburgh, PA May 2013- Present
	<ul style="list-style-type: none"><li>• Supervised and mentored 2 other facilities assistants to ensure work was completed</li><li>• Collaborated with other campus departments to ensure the smooth operation of 7 different computer clusters</li></ul>	
	<b>NASA HQ- Summer Intern</b>	Washington D.C. June 2014- August 2014
	<ul style="list-style-type: none"><li>• Supported the Strategic Investment Division (SID) in the development of diverse cross cutting analysis associated to provide insight into NASA's agency performance at various levels</li><li>• Supported development, and operations research methods and techniques to analyze what if scenarios</li><li>• Assisted the Crosscutting Team lead regarding decisions critical to the overall management of the OCFO SID functions</li></ul>	
LEADERSHIP/ SERVICE	<b>Actuarial Club, Co-President, Treasurer</b>	September 2012- Present
	<ul style="list-style-type: none"><li>• Managed a budget of \$550 which involved buying food for general body meetings, purchasing practice manuals for actuarial exams, and booking rental cars for career fairs at local universities</li><li>• Arranged for former/current actuaries to speak at general body meetings</li></ul>	
	<b>Delta Sigma Women's Fraternity, Founding Member, Director of Finance</b>	October 2012- Present
	<ul style="list-style-type: none"><li>• Collected dues of \$350 a semester per member</li><li>• Managed members' financial records online via Excel</li><li>• Organized future events and recruited potential members, bringing the chapter size to more than 85 women</li></ul>	
	<b>Women's Club Soccer, Player, Treasurer</b>	September 2011- Present
	<ul style="list-style-type: none"><li>• Managed a budget of \$2,000 which was spent on coaches and game fees</li><li>• Booked rental cars costing \$300 to use for away tournament</li></ul>	

# MCS RESUME 5

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## EDUCATION

**Carnegie Mellon University (CMU)**, Pittsburgh, PA May 2016  
**Bachelor of Science in Chemistry, Minor in Mathematical Sciences**  
Cumulative GPA: 3.98, Dean's List High Honors

## ACADEMIC PROJECTS

**Synthesis of 4,4-dimethyl-1-phenylpent-1-en-3-ol, Molecular Design & Synthesis** Fall 2014

- Given a target molecule and limited starting materials, designed a procedure to synthesize, isolate, and characterize the target
- Carried the procedure out in the lab
- Performed trouble-shooting to solve problems in lab. Delivered a poster presentation of important results

**Sugar and Dye Content in Gummy Bear Candy, Introduction to Chemical Analysis** Fall 2013

- Four-person team project to analyze dye and sugar concentrations in multiple brands of gummy bear candy
- Performed dye analysis by UV-Vis spectroscopy and data analysis using Microsoft Excel
- Requisitioned and managed chemicals for the project; culminated in a team PowerPoint presentation

## WORK EXPERIENCE

**Academic Development, CMU**  
Peer Tutor Oct 2013 – Present

- Lead weekly tutoring sessions for individual students. Also conduct weekly walk-in tutoring sessions for larger groups; Courses tutored include Modern Biology, Principles of Computing, Biochemistry, and Organic Chemistry

**Eureka! First Year Seminar, Mellon College of Science, CMU**  
Teaching Assistant Aug 2015 – Dec 2015

- Teaching assistant in a first year seminar course designed to facilitate student success in college
- Work with a faculty partner to plan and lead a weekly recitation section of fifteen students

**Drug Metabolism & Pharmacokinetics Group, Pharmaceutical Company, Cambridge, MA**  
Synthetic Chemistry Intern Jun 2015 – Aug 2015

- Carried out a new route to synthesize a drug of interest
- Performed analysis of reactions by HPLC and LC/MS, purification by column chromatography and preparatory HPLC, and characterization of new compounds by NMR spectroscopy
- Delivered a PowerPoint presentation to the DMPK group at the end of the internship

## RESEARCH EXPERIENCE

**Physical Chemistry Lab, Dr. Chemistry Group, CMU** May 2014 – Present

- Analyze the morphological and mechanical properties of polymers by atomic force microscopy
- Study the electronic properties of nanoparticles by UV-Vis spectroscopy
- Analyze data using MATLAB and Mathematica

**Nephrology Lab, Hospital, Providence, RI** Jun 2013 – Aug 2013

- Worked under Dr. Nephrology. Analyzed mouse genotypes using polymerase chain reaction and gel electrophoresis

## TECHNICAL SKILLS

**Computer:** Proficient in Python, Mathematica, LaTeX, Microsoft Office; basic Maple, MATLAB, Ruby, Ampac

**Laboratory:** Synthetic skills, atomic force microscopy, IR, NMR, EPR, UV-Vis, atomic absorption, and fluorescence spectroscopies, column chromatography, HPLC, preparatory HPLC, gas chromatography, gas chromatography-mass spectrometry, liquid chromatography-mass spectrometry, distillation, gel electrophoresis, polymerase chain reaction, exposure to fluorescence microscopy

## ACTIVITIES

**Murder Mystery Play, Department of Chemistry, CMU, Cast Member** Feb 2015  
**First-Year Mentor Program, Mellon College of Science, CMU, Peer Mentor** Aug 2014 – Dec 2014

## AWARDS & HONORS

ACS Analytical Chemistry Division Award May 2015  
Honor Society of Phi Kappa Phi Apr 2015  
Warner Prize for Sophomores May 2014

# MCS Resume 6

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## EDUCATION

### Ph.D. Chemistry, Carnegie Mellon University, Pittsburgh, PA

May 2016

- G.P.A. 3.98
- Dissertation: Investigating the biological implications of guanine-quadruplex recognition by peptide nucleic acid oligomers
- Thesis Advisor: Prof. Bruce Armitage

### B.Sc. Chemistry, Morgan State University, Baltimore, MD

May 2011

- G.P.A. 3.97
- Thesis: Microwave-assisted synthesis and photo-physical characterization of cyanine dyes for imaging of live cells
- Thesis Advisor: Prof. Angela Winstead

## RESEARCH EXPERIENCE

### Ph.D. Candidate/Research Assistant, Carnegie Mellon University

September 2011 – Present

- Designed and synthesized novel peptide nucleic acid ligands that bind to DNA/RNA targets with exceptional affinity. This work is currently being funded by a successful grant application (\$3.1 million) to the David Scaife Family (DSF) charitable foundation.
- Developed the first enzyme reporter assays that demonstrate the biological activities of peptide nucleic acids, which are novel DNA-binding compounds. This technique is now widely used by my colleagues to probe for biological functions of active DNA/RNA ligands.
- Characterized novel ligand-protein complexes that can be used for imaging components of live cells.
- Implemented an automated method for peptide synthesis that is now widely used by my colleagues to obtain novel peptide nucleic acid molecules.
- Developed several novel spectroscopic methods for characterizing molecular interactions. These methods are now routinely used by my colleagues within the center for nucleic acid science at Carnegie Mellon University.

### Research Student, NSF-RISE

September 2007 – May 2011

- Developed a novel method for synthesizing cyanine dyes using microwave heating systems in the lab of Prof. Angela Winstead at Morgan State University. Results from this study were vital in securing \$500,000 in grant funding from the Department of Defense.
- Optimized the synthesis of precursors to peptide mimics in the lab of Prof. Kevin Burgess at Texas A&M University. Results from this work improved overall yield of the compounds by 80% and contributed to a grant application to the National Institutes of Health.
- Designed and synthesized cyanine dyes for monitoring biological processes in living cells in the lab of Prof. Bruce Armitage at Carnegie Mellon University.

## LEADERSHIP EXPERIENCE

### Professional Organizations

- Pittsburgh student chapter, National Organization for the professional advancement of Black Chemists and Chemical Engineers (NOBCCHE), Co-President
- National Society of Black Engineers, Member
- American Chemical Society, Member

- Golden Key International Honors Society, Member

### **Mentoring Activities**

- Initiated, planned, and directed execution of science outreach demos to serve children in underserved communities.
- Mentored both an undergraduate and a graduate student towards completion of a summer research project and Master's degree, respectively.
- Volunteered with science outreach organization (DNAZone) to plan and present science demos in order to foster science interest among kids in Pittsburgh's high schools.
- Participated as one of the mentors in a vacation Bible school organized for children in elementary and middle schools.
- Served as the vice-president of a Young Adults' ministry that provides spiritual and emotional support to college students in all colleges in Pittsburgh.

### **SELECTED PUBLICATIONS**

- Winstead, A., Nyambura, G., Matthews, R., Toney, D., **Resume 6, M.**, Synthesis of Quaternary Heterocyclic Salts, *Molecules*, 2013, 18, 14306 - 14319.
- Winstead, A., **Resume 6, M.**, 1-(6-methoxy-6-oxohexyl)-4-methylquinolinium iodide, *Molbank*, 2010, M647.
- Winstead, A., Williams, R., Zhang, Y., Mclean, C., **Resume 6, M.**, Microwave Synthesis of Cyanine Dyes, *J. Microwave Power and Electromagnetic Energy*, 2010, 44, 207-212.

### **AWARDS AND ACKNOWLEDGMENTS**

- Dr. Julius A. Vida S 1960, '61 Fellowship in Chemistry (Carnegie Mellon) **2011**
- Outstanding Academic Male of the Year (Morgan State University) **2011**
- Award for Excellence in Chemistry (Morgan State University) **2011**
- Organic Chemistry Award (Morgan State University) **2011**
- Colgate Palmolive Undergraduate Chemical Engineering Award **2010**
- National Society of Black Engineers BCA scholar **2009**
- 'Honorable Mention' winner for poster presentation at annual NOBCCHE Conference **2009**
- 2<sup>nd</sup> place winner for poster presentation at annual Historically Black Colleges and Universities Undergraduate Program (HBCU-UP) research conference **2009**
- 3<sup>rd</sup> place winner for poster presentation at HBCU-UP research conference **2008**
- Morgan State University Full Academic Scholarship Recipient **2008-2011**