William T. Roddy

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EDUCATION

University of Delaware
Master of Science in Bioinformatics and Computational Biology (GPA: 4.0) **Anticipated May 2021**

University of Arizona
Bachelor of Science in Neuroscience and Cognitive Science (emphasis: Neurobiology)
Minors in Molecular and Cellular Biology, Ecology and Evolutionary Biology, and Science Education

COMPUTER and TECHNICAL SKILLS

Programming Languages: Python, R, SQL, Linux, PowerShell, Git, SAS, VBA, Perl, MATLAB
Software: Microsoft Access, REDCap, MySQL, MariaDB, PuTTY, WinSCP, Notepad++, LaTeX, Microsoft Excel

EXPERIENCE

Henry M. Jackson Foundation for the Advancement of Military Medicine **December 2016 – Present**
Under Contract: Uniformed Services University of the Health Sciences – Center for Rehabilitation Sciences Research (crsr.org)
This position required obtaining and maintaining NACLC/ADP-II (Secret) Clearance

Data and Information Systems Manager **June 2018 – Present**

- Lead and coordinate on all informatics requirements and needs for biomedical research within the Center
- Oversee and direct activity for the collection, storage, processing and storage and research data
- Develop customized processing and analysis programs, software, and scripts
- Design and engineer the development of custom databases with automated workflows and custom interfaces
- Computer systems analyst leading the biomedical informatics development of computer system infrastructure for optimal computational analysis and data flow between computer processors, RAM, and LAN storage
- Primary lead for development of informatics infrastructure for interdisciplinary research
- Lead identification, design, and implementation of appropriate electronic data capture systems and data collection forms for research protocols meeting privacy and cybersecurity requirements
- Produce data visualizations and analysis to communicate findings to policy makers and decision makers
- Leads in the development of standard operating procedures (SOPs) to provide guidelines for informatics and other staff on the design and processes inherent in the database schema and data dictionaries interoperability
- Maintain responsibilities from Data Manager

Data Manager **December 2016 – June 2018**

- Oversee full life cycle of data from planning through long term data storage
- Design MS Access form structures, tables, queries, and VBA to support workflows and end users in data entry
- Lead data management and data capture planning for 20+ biomedical research studies in the Center
- Provide technical expertise for data flow, data collection, data processing, and database editing
- Manage data submissions to public repositories and informatics systems by using existing Common Data Elements and Form Structures or defining new Unique Data Elements and Form Structures
- Conduct data extraction, processing, cleaning, and analysis using a wide variety of programming languages
- Complete QA/QC processes and clean datasets
- Maintain extensive working knowledge of Military Health System data and extraction procedures
- Ensure regulatory compliance with data collection, analysis, storage, and transfer of data
- Write SQL syntax to troubleshoot problems concerning database records, optimize data quality and automate the process returning accurate query results
- Define and oversee execution of Data Share Agreements, System Security Verifications and documentation for regulatory and privacy policies
- Collaborate and assist in preparing manuscripts, progress reports, scientific communication
- Collaborate on grant writing and application preparation including leading development of methodology, experimental plan, data flow, and resource sharing plans

Dr. Stephen Cowen Laboratory, Evelyn McKnight Brain Institute **August 2013 – May 2015**
Research Assistant
Funding was supported by two competitive programs (the Neuroscience and Cognitive Science Summer Research Program and the Undergraduate Biology Research Program at the University of Arizona)

- Conduct experiments using both chronic implant and acute study surgery techniques
- Assist with the implementation of new data collection systems including a combined dopamine-neural networks system and the Intan electrophysiology system
- Assemble hardware and write code for microcontrollers to support experiment control and synchronize metadata and data to ensure effective experimentation
- Collaborated with team members to complete data processing and analysis cluster cutting (using MClust), scripting, interpreting data, and data management

National Optical Astronomy Observatory **July 2012 – December 2016**
Department of Education and Public Outreach

Special Projects Assistant III (Student Manager) **August 2014 – December 2016**

- Site project manager for NSF grant funded for $1,500,000: "Collaborative Research: Project STEAM: Integrating Art with Science to Build Science Identities among Girls" (Colors of Nature)
- Manage and coordinate all logistics, products, materials, and detailed planning for 10-day summer academies
- Provided support for the materials management and liaison between Tucson, AZ. and Fairbanks, AK.
- Evaluate video footage of the research
- Organize Science Café series
- Write and edit lesson plans for the curriculum development and distribution
- Maintain responsibilities from Special Projects Assistant II

Special Projects Assistant II (Lead Student) **July 2013 – August 2014**

- Lead organizational efforts and management of department for 100+ outreach events
- Manage goals, deadlines, and projects in a timely and effective manner for 5-6 undergraduate students
- Provided STEM education opportunities to members of the Tohono O'odham (Native American) nation, high need communities, and other underrepresented groups
- Coordinated regularly with the Shipping and Receiving department to provide effective communication between departments ensuring proper shipment, receiving, and billing of all packages
- Coordinated directly with the Central Facilities Office to schedule repairs, maintenance requests, facilities concerns, and vehicle fleet management
- Served as departmental contact for interactions with the Cooper Center for Environmental Learning
- Maintain responsibilities from Special Projects Assistant I

Special Projects Assistant I **July 2012 – July 2013**

- Assisted in providing 100+ Education and Public Outreach Opportunities annually in Tucson, AZ. and nearby areas such as star parties, STEM nights, teacher workshops, and a variety of opportunities for STEM outreach
- Provided 20+ astronomy and dark skies evenings for the Cooper Center for Environmental Learning
- Coordinated After School programming at Indian Oasis Elementary School on the Tohono O'odham Nation
- Developed and refined additional science education activities and curriculum for teachers

Dr. Constance E. Walker, Photometric Calibration of Sky Quality Meters **January 2013 – May 2014**
Research Assistant

- Conducted extensive laboratory and field-testing of the "Sky Quality Meter" to characterize the photometric properties of the devices under a variety of variables and parameters to allow more precise error analysis
- Directed extensive testing revealed experimental design oversights that were corrected for by experiment control and design and through post-processing analysis of the data
- Developed an initial pipeline for data reduction and analysis
- Analyze test data to determine device deficiencies and error

PUBLICATIONS

"Development and Implementation of the Military Treatment Facility Engagement Committee (MTFEC) to support Pragmatic Clinical Trials in the Military Health System"
Scarton DV, **Roddy WT**, Taylor JA, Geda M, Brandt C, Peduzzi P, Kerns R, Pasquina P
Military Medicine, *2019 Military Health System Research Symposium supplement*,
Manuscript submitted for review January 2020.

"Strategy for Addressing Overlapping Sites in the NIH-DOD-VA Pain Management Collaboratory (PMC)"
Geda M, Gordon K, Burgess D, George S, Pasquina P, **Roddy WT**, Scarton D, Brandt C, Kerns R, Peduzzi P, on behalf of the NIH-DoD-VA Pain Management Collaboratory, manuscript in preparation.

"NIH-DoD-VA Pain Management Collaboratory"
Kerns R, Brandt C, Peduzzi P, **NIH-DoD-VA Pain Management Collaboratory (Roddy WT)**, Pain Medicine, pnz186, https://doi.org/10.1093/pm/pnz186

SELECT PRESENTATIONS

"Data and Analytics Infrastructure to Advance Musculoskeletal Injury Rehabilitation Research"
Heller JB, **Roddy WT**, Isaacson BM, Hager NH, Pasquina PF
Extremity War Injuries Symposium XV, Washington, D.C., January 2020

"Prosthetic Feet Prescribed to Services Members with Unilateral Transtibial Amputation"
Hewitt M, **Roddy WT**, Thaper A, Jaskot E, Ivanina N, Buccellato K, Jeffries J, Taylor J, Pasquina PF
Extremity War Injuries Symposium XV, Washington, D.C., January 2020

"Rehabilitation and Clinic Utilization of Patients with Combat Related Amputation in the US Military Health System"
Roddy WT, McHugh TM, Thaper A, Smith DG, Isaacson BM, Pasquina P
The Military Health System Research Symposium, Kissimmee FL, August 2019

"First Year of Prosthetic Care for Combat Casualties at Walter Reed National Military Medical Center"
Thaper A, Jeffries J, **Roddy WT**, Smith DG, Symsack A, Garland J, Jacobs M, Pasquina P
The Military Health System Research Symposium, Kissimmee FL, August 2019

"Development and Implementation of the Military Treatment Facility Engagement Committee (MTFEC) to support Pragmatic Clinical Trials in the Military Health System"
Scarton DV, **Roddy WT**, Taylor JA, Geda M, Brandt C, Peduzzi P, Kerns R, Pasquina P
The Military Health System Research Symposium, Kissimmee FL, August 2019

"Service Dog Training in the National Capital Region: A 5-Year Retrospective Review"
Roddy WT, Taylor J, Nordstrom M, Olanrewaju C, Daugherty S, Hagen E, Isaacson B, Pasquina P, Pascale B
The Military Health System Research Symposium, Kissimmee FL, August 2018

"Assessing the Feasibility of a Novel Non-Invasive Sensor for Guiding Wounded Warrior Rehabilitation"
Symsack S, Miller M, Bach K, Sharp W, **Roddy WT,** Isaacson B, Pasquina P
The Military Health System Research Symposium, Kissimmee FL, August 2018

"Service Dog Training: An Experiential Learning Treatment Modality"
Nordstrom M, Hagen E, Brown A, Proctor A, **Roddy WT**, Pascale B, Olanrewaju C, De Almeida N, Isaacson B, Pasquina P American Occupational Therapy Association, Salt Lake City, April 2018

"Electrophysiological Recordings in the Anterior Cingulate Cortex and Dorsal Striatum during Reward Discrimination"
Roddy WT, Ye T, Cowen S Undergraduate Biology Research Program, January 2014

"Anterior Cingulate Cortex Stimulation Modulates Dorsal Striatum Local Field Potentials"
Roddy WT, Ye T, Cowen S, Neuroscience and Cognitive Science Summer Research Program, August 2014

"Communicating Dark Skies and Energy Education with Middle School Teachers and Students"
Roddy WT, Walker CE, Dugan C, Newhouse M, Pompea S, International Dark Skies Association, Annual General Meeting, December 2013

WORKING GROUP MEMBERSHIPS

Uniformed Services University of the Health Sciences

Council of Center Directors – IT Working Group	December 2018 – Present
Office of Vice President for Research – Informatics Working Group	December 2017 – Present

NIH-DoD-VA Pain Management Collaboratory

Electronic Health Records (EHR) Work Group	September 2017 – Present
Data Sharing Work Group	September 2017 – Present
Military Treatment Facility Engagement Committer	September 2017 – Present

HONORS and AWARDS

National Optical Astronomy Observatory Project ASTRO Outstanding Partnership	Spring 2014
International Dark Skies Association Student Light Pollution Researcher Award	Fall 2013
Robert Noyce Teacher Scholarship Program	Spring 2013
Galileo Circle Scholar - Gilbert R. Escalante Memorial Scholarship	Spring 2013
Academic Year Academic Distinction	Fall 2012 – Spring 2013
Academic Honorable Mention	Spring 2012 & Fall 2012

NOTABLE COURSEWORK

University of Delaware:

BINF690: Programming for Bioinformatics
BINF694: Systems Biology I, BINF644: Bioinformatics
BINF667: Applied Machine Learning, STAT656: Biostatistics

National Institutes of Health - Foundation for Advanced Education in the Sciences:

PBHL537: Health Policy Analysis Using SAS and STATA

University of Arizona:

MCB 416a: Statistical Bioinformatics & Genomic Analysis, ECOL 346: Bioinformatics
NROS 430: Neurogenetics, MCB 304: Molecular Genetics
MCB 492: Directed Research "Developmental Neuroscience and Biology"
ECOL 335: Evolutionary Biology
NROS 415b: Advanced Electrophysiology Laboratory, NSCS 315: Methods in Neuroscience and Cognitive Science

CONFERENCES and PROFESSIONAL DEVELOPMENT

University of Delaware Data Science Institute Symposium	November 2019
Metabolic Pathways and Therapeutics to Promote Resilience, Rehabilitation and Delayed Aging	October 2019
Annual Health Informatics and Data Science Symposium at Georgetown University	October 2019
Military Health System Research Symposium 2019	August 2019
American Medical Informatics Association Annual Symposium	November 2018
Military Health System Research Symposium 2018	August 2018
Recent Advances for the Care of the Combat Amputee	May 2018
National Capital Area TBI Research Symposium 2018	March 2018
Structural Equation Modeling Workshop	January 2018
Research Data Management Implementation Workshop	September 2017
Military Health System Research Symposium 2017	August 2017
Virtual Reality Applications for Advancing Rehabilitation	April 2017
Society for Neuroscience Annual Meeting	Fall 2014
Arizona Science Teachers Association Annual Meeting	Fall 2014
Undergraduate Biology Research Program Bioethics Retreat	Summer 2014
UA AAU Project Workshop Facilitating Active Learning in the Classroom	Spring 2014
International Dark Skies Association Annual General Meeting	Fall 2013

MENTORING EXPERIENCE

Center for Rehabilitation Sciences Research, Summer Internship **Summer 2019**

Mentee: Melissa Hewitt, Undergraduate Student

Project: Characterization and Frequentist Description of Prosthetic Feet Prescribed to Services Members with Unilateral Transtibial Amputations

TEACHING EXPERIENCE

STCH 410 Teaching Practicum: Mansfeld Middle School (7th Grade Science) **Fall 2015**

Completed teaching practicum of at least 50 observation and instruction hours in a middle school classroom. Required 10 days of complete planning and instruction within the classroom. Collaborated with partner teacher to conduct lessons, experiments, and assessments of student understanding. Required planning and developing materials for instruction in the science classroom.

Preceptor – NROS215: Introduction to Electrophysiology Laboratory **Spring 2014**

Facilitated laboratory experience for undergraduates through leading discussions and weekly laboratory demonstrations. Assisted in instruction of electrophysiological techniques through demonstrations, guidance, and hands-on learning experiences for students. Maintained stock of *Sarcophaga bullata* for electrophysiology experiments. Graded reports and practical examinations. Hosted office hours as needed.

STCH 250 Classroom Field Placement: Tucson High School and Mansfeld Middle School **Spring 2013**

Observed classroom interactions and student learning with guided direction from course material and mentor teacher. Planned and instructed hands-on laboratory experience regarding circuits for freshmen integrated science course and 7th grade science. Planned and instructed demonstration related to geological history and timeline to enhance student engagement through instruction. Generated assessments and evaluated student assessment and learning outcomes.

Volunteer – National Optical Astronomy Observatory: Project ASTRO Partner **Fall 2013 – Fall 2016**

Partnerships: Kathy Roddy, Kingman Blended Learning Center and David Hansbrough, Mansfeld Middle School

Provide expert level astronomy resources to K-12 classroom teachers for hands on learning experiences. Assist in planning educational opportunities and activities for both informal and formal learning opportunities at the school. Plan school-wide STEM Night with hands-on activities and telescope observing. Plan school-wide Astronomy Day with a variety of optics activities, hands-on astronomy activities, and observing.

STCH 310 Classroom Field Placement: Amphitheater High School (Pre-AP Chemistry) **Fall 2013**

Conducted student interviews to scaffold learning of stoichiometry and balancing chemical reactions. Planned assessment strategies to identify misconceptions regarding conservation of mass and conservation of energy. Lead instructional time posing an assessment and evaluating student outcomes.