

Richard Hanna

Woodlyn, PA 19094 | (609) 320-2923 | richardshanna91@gmail.com

Professional Summary

Experienced Data Scientist specializing in automation of clinical research workflows using advanced application design, ETL processes, and machine learning models. Skilled in data management, dashboard development, and statistical analysis to drive innovation in medical research. Open-source software developer and contributor in data analytics and visualization.

Employment History

DATA SCIENTIST II, 2021 – PRESENT

Children's Hospital of Philadelphia – [CGT Informatics](#), Philadelphia, PA

- Developed novel applications using R Shiny for stem cell transplant reporting
- Engineered databases with error detection and custom analytics for clinical trials
- Authored open-source R packages for data visualization and analytics
- Implemented standardized ETL methods for complex data integration
- Mentored peers in database engineering and programming best practices

DATA ANALYST & PROGRAMMER, 2019 –2021

Children's Hospital of Philadelphia – Critical Care Medicine, Philadelphia, PA

- Designed robust ETL processes for international research collaboration
- Developed dynamic dashboards and automated reports using R Shiny which fostered collaboration and led to exploratory analytics in CPR research
- Led data-driven initiatives supporting research publications
- Facilitated data exchange between institutions with varying technical capabilities

RESEARCH PROJECT ENGINEER, 2017 – 2019

Children's Hospital of Philadelphia – Critical Care Medicine, Philadelphia, PA

- Drastically reduced reporting and analytics times by developing custom programmatic solutions with R, Python, and MATLAB
- Developed a novel method for assessing and modeling pediatric chest geometry
- Extracted and analyzed data for vital sign wave forms from various medical devices in a range of different formats

PROJECT ENGINEER, 2014 – 2017

GS Medical USA, King of Prussia, PA

- Led R&D lifecycle for several spinal fixation systems
- Ensured compliance with ASTM & ISO standards using mechanical testing protocols for quality control and assurance
- Handled design requests between surgeons and international engineering teams

BIOMECHANICS ENGINEERING RESEARCHER, 2014 – 2015

Children's Hospital of Philadelphia – [CIRP](#), Philadelphia, PA

- Created and published a virtual surrogate model for pediatric restraint systems, providing valuable insights for interior vehicle design
- Used motion capture technology to model and analyze occupant crash kinematics

Skills

AWS
Database Design
Dashboard Dev
R
REDCap
Package Dev
Python
SQL

Links

[LinkedIn](#)
[GitHub](#)
[Website](#)
[ORCID](#)

Certifications

[AWS Solutions Architect FE/EIT Certificate](#)

Education

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

Drexel University, 2015

GRADUATE CERTIFICATE IN ENGINEERING MANAGEMENT

Drexel University, 2015

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Drexel University, 2015

Selected Publications

REDCapTidieR: Extracting complex REDCap databases into tidy tables
[The Journal of Open Source Software](#)

A machine-learning model that incorporates CD45 surface expression predicts hematopoietic progenitor cell recovery after freeze-thaw
[Cytotherapy](#)

Automation of Hematopoietic Cell Transplantation Outcomes Reporting Leads to Dramatic Reduction in Errors Reported to Real-World Data Registry
[American Society for Transplantation and Cellular Therapy](#)

Effect of Amplitude Spectral Area on Termination of Fibrillation and Outcomes in Pediatric Cardiac Arrest
[Journal of the American Heart Association](#)

Paediatric In-hospital cardiopulmonary resuscitation quality and outcomes in children with CHD during nights and weekends
[Cardiology in the Young](#)

Risk factors and outcomes for recurrent paediatric in-hospital cardiac arrest: Retrospective multicenter cohort study
[Resuscitation](#)

Related Experience

- **R User Group Steering Committee Member**
Children's Hospital of Philadelphia
- **R 101 for Clinicians Teaching Assistant**
Children's Hospital of Philadelphia
- **ggplot2 Extenders Member**