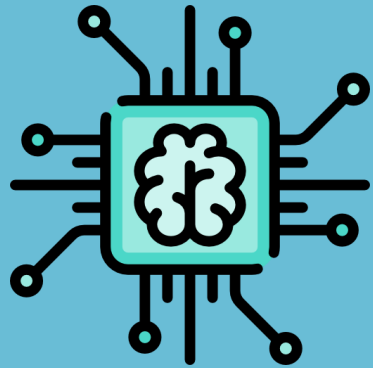# RICHARD S. HANNA

As a Data Scientist at the Children's Hospital of Philadelphia, I develop data-driven solutions and design operational software to support clinical and research needs. The contextual scope of my work has ranged from pediatric cardiac arrest to airway management and, most recently, to cell and gene therapy and stem cell transplantation. My passion is to provide both education and problem solving support through data science and engineering in an effort to improve patient care and answer cutting-edge medical questions.

🎓 EDUCATION

2015 | 2013

M.S., Biomedical Engineering
Drexel University
📍 Philadelphia, PA

2015 | 2013

Graduate Certificate in Engineering Management
Drexel University
📍 Philadelphia, PA

2015 | 2010

B.S., Mechanical Engineering
Drexel University
📍 Philadelphia, PA

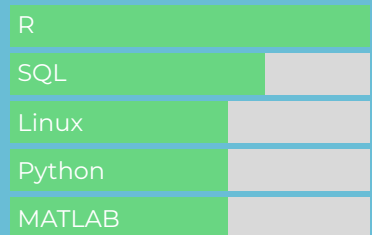· Senior Design Project: Automated Couette Flow Blood Viscometer

⚙ EXPERIENCE

Present | 2021

Data Scientist
Children's Hospital of Philadelphia - Cell & Gene Therapy Laboratory
📍 Philadelphia, PA

· Developed applications for chimeric antigen receptor therapy research
· Implemented cloud computing solutions via Amazon Web Services for application hosting and development
· Worked closely with clinicians and researchers to address data needs and construct proper workflows

2021 | 2019

Data Analyst & Research Engineer
Children's Hospital of Philadelphia - Department of Anesthesiology & Critical Care Medicine
📍 Philadelphia, PA

· Developed a full data pipeline for an international research collaborative
· Created data dashboards, reports, and tools to inform clinical decisions
· Led data-driven projects and team infrastructure using R, Python, & MATLAB
· Consulted with external institutions to supply database solutions

2019 | 2017

Research Project Engineer
Children's Hospital of Philadelphia - Department of Anesthesiology & Critical Care Medicine
📍 Philadelphia, PA

· Minimized completion time for various tasks through automated solutions
· Analyzed patient waveforms and data streams from various medical devices
· Supervised data quality and integrity in database systems
· Developed a novel method for anterior/posterior pediatric chest geometry modeling

2017

Project Engineer
GS Medical USA
📍 King of Prussia, PA

· Led R&D life cycle of multiple spinal fixation system projects
· Served as the point of contact for surgeons and customers
· Conducted mechanical testing per ASTM and ISO standards for quality control
· Oversaw development of the Occiptal-Cervical-Thoracic fixation system

CONTACT

✉
richardshanna91@gmail.com
richard_s_hanna
github.com/rsh52
richardshanna.com
(609) 320-2923

SKILLS

| R |
| SQL |
| Linux |
| Python |
| MATLAB |

BI SOFTWARE SKILLS

Tableau

Power BI

CERTIFICATIONS

FE/EIT Certified by NCEES

2017
|
2015

Associate Project Engineer

GS Medical USA

📍 King of Prussia, PA

· Supported project leadership in design and development of spinal implant systems
· Consulted with international partners over production needs
· Observed surgical cases demonstrating company product use

2015
|
2014

Biomechanics Engineering Researcher

Children's Hospital of Philadelphia - Center for Injury Research & Prevention

📍 Philadelphia, PA

· Created a virtual surrogate model for child restraint system assessment
· Coauthored and presented publications on research findings
· Assessed occupant motion and injury kinematics using motion capture technology

📊 SELECTED PUBLICATIONS & POSTERS

2022

Paediatric In-hospital cardiopulmonary resuscitation quality and outcomes in children with CHD during nights and weekends

Cardiology in the Young

· Priscilla Yu, Ivie Esangbedo, Xuemei Zhang, Richard Hanna, Dana E. Niles, Vinay Nadkarni, Tia Raymond

2021

Risk factors and outcomes for recurrent paediatric in-hospital cardiac arrest: Retrospective multicenter cohort study

Resuscitation

· Maria E. Frazier, Stephanie R. Brown, Amanda O'Halloran, Tia T. Raymond, Richard Hanna, Dana E. Niles, Monica Kleinman, Robert M. Sutton, Joan Roberts, Ken Tegtmeyer, Heather A.Wolfe, Vinay M. Nadkarni, Maya Dewan

2021

Effect of Amplitude Spectral Area on Termination of Fibrillation and Outcomes in Pediatric Cardiac Arrest

JAHA

· Tia T. Raymond, Sandeep V. Pandit, Heather Griffis, Xuemei Zhang, Richard Hanna, Dana E. Niles, Annemarie Silver, Javier J. Lasa, Sarah E. Haskell, Dianne L. Atkins, Vinay M. Nadkarni

2020

Pediatric cardiopulmonary resuscitation quality during intra-hospital transport.

Resuscitation

· Morgan Loaec, Adam S Himebauch, Todd J Kilbaugh, Robert A Berg, Kathryn Graham, Richard Hanna, Heather A Wolfe, Robert M Sutton, Ryan W Morgan

2019

Pediatric In-Hospital CPR Quality at Night and on Weekends

Resuscitation

· Ivie Esangbedo, Priscilla Yu, Tia Raymond, Dana E. Niles, Richard Hanna, Xuemei Zhang, Heather Wolfec, Heather Griffis, Vinay Nadkarnic for the Pediatric Resuscitation Quality (pediRES-Q) Collaborative Investigators

2018

Is CPR Quality Worse on Nights and Weekends in the Cardiac ICU?

PCICS

· Priscilla Yu, Ivie Esangbedo, Heather Griffis, Richard Hanna, Vinay Nadkarni, Dana E. Niles, Tia Raymond

2018 • **Cardiopulmonary Resuscitation in the Pediatric Emergency Department: Initial Findings from the Videography in Pediatric Emergency Research (VIPER) Collaborative**

ReSS

· Karen J. O'Connell, Alexis B. Sandler, Matthew Leda, Benjamin T. Kerrey, Sage R. Myers, Mary Frey, Ichiro Watanabe, **Richard Hanna**, Aaron J. Donoghue

2015 • **Development of a Small Rear Facing Child Restraint System Virtual Surrogate to Evaluate CRS-to-Vehicle Interaction and Fitment**

SAE

· Aditya Belwadi, **Richard Hanna**, Audrey Eagle, Daniel Martinez, Julie Kleinert, Eric Dahle

RELATED EXPERIENCE

Present | 2018 • **CHOP R User Group Steering Committee Member**

Children's Hospital of Philadelphia

· Led, organized, and participated in R user classes, group talks, and seminars to encourage education and collaboration throughout the enterprise
· Assisted in teaching introductory R courses to new users throughout CHOP
· Presented on R concepts including R Markdown, API workflows, and clinical reporting to drive effective cross-displine communication

Present | 2020 • **R 101 for Clinicians Teaching Assistant**

Children's Hospital of Philadelphia

· Supported leadership in the CHOPR User Group and community in educating clinicians around the hospital on the fundamentals of R
· Facilitated online learning and helped new users troubleshoot issues