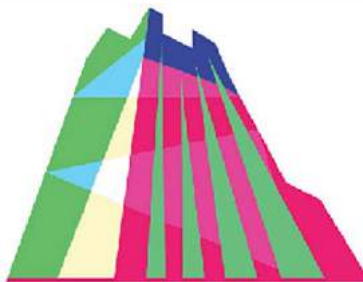


Pitt Challenge 2019

COMPETITION BOOKLET

www.pittchallenge.com



PITT CHALLENGE | 2019

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PIL.LAB Producers of Pitt Challenge 2019

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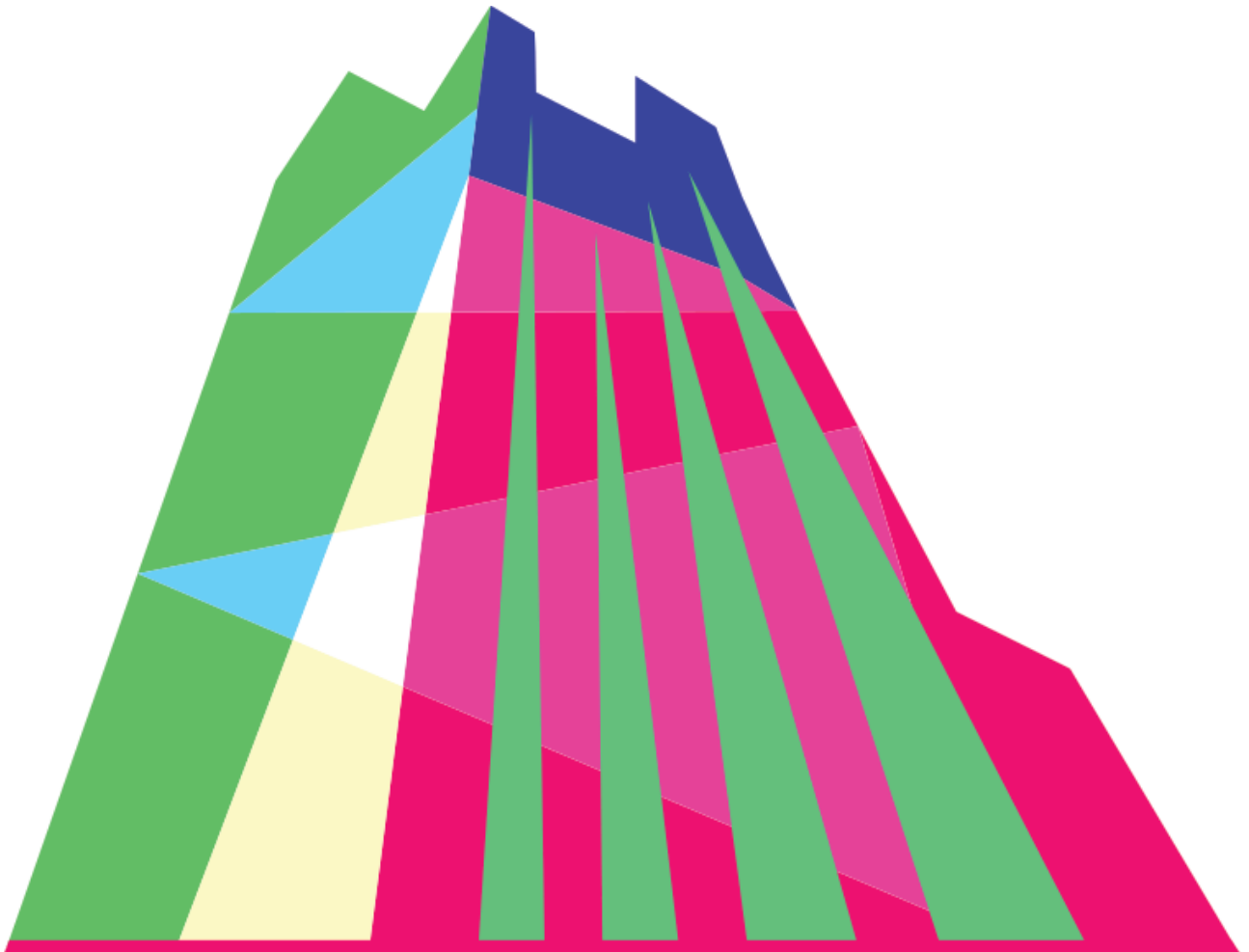


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Our Mission Expedite
healthcare innovation
through experience and
network

Our Vision A world where
healthcare is a leading
industry in technology
innovation



Why are we passionate about healthcare innovation?

We believe there are two problems:

1. The “Network Chasm”

It separates innovators and healthcare providers for lack of knowing each others’ full capabilities.

2. The “Complexity Gap”

The challenges we face in healthcare are not as obvious as most people think.

The Pitt Challenge offers students the opportunity to tackle these issues.

Through our 24-hour hackathon, students are creating the next innovations in healthcare and technology.

Statistics Pitt Challenge 2019

120 total participants

94 *computer science*
students

26 *healthcare* students

31 final team *submissions*

16 academic institutions

9 states **2** countries

Production Team Pitt Challenge 2019

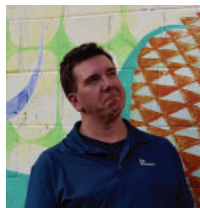
Pitt Pharmacy Faculty & Staff



Ameer Ali
ameer.ali@pitt.edu
PharmD
Faculty, Director



Ravi Patel
ravipatel@pitt.edu
PharmD
Faculty, Co- Director



Matt Freidhoff
mjf49@pitt.edu
Staff
Operations Mgr

Pharmacy Students



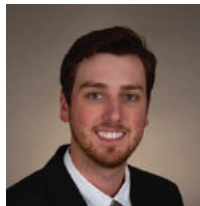
Spencer Schlecht
sgs38@pitt.edu
Student Lead

Fourth year student pharmacist on the pursuit towards empowering individuals to lead healthy, autonomous lives through tech and creativity



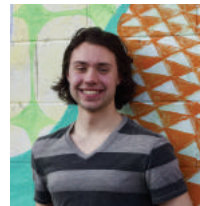
Dan Schrum
danschrum@pitt.edu
Student Co-Lead

Fourth year student pharmacist pursuing a career in critical care and infectious disease blended with leading the field in innovative technologies



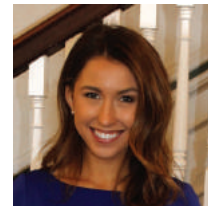
Adam Patrick
adam.patrick@pitt.edu

Fourth year student pharmacist dedicated to improving patient outcomes through the use of evidence-based medicine in the clinical pharmacy setting



Colin Pfeiffer
cmp132@pitt.edu

Third year student pharmacist focusing on digital health technologies and international pharmaceutical business



Brooke Kulusich
bek69@pitt.edu

Second year student pharmacist interested in pharmacy law, regulatory affairs, and business innovation

Computer Science Students



Roisin O'Dowd
roisinodowd@pitt.edu
Alumna

Software engineer interested in improving medical care and furthering biomedical research through the use of technology



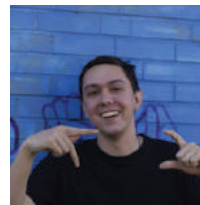
Justin Kramer
jpk91@pitt.edu
Junior

Software engineering student looking to innovate in the healthcare sector and make an impact



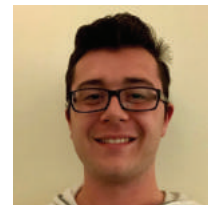
Steven Barash
stevenbarash@pitt.edu
Senior

Fourth year Information Science student and software engineer interested in UI/UX, front end, and mobile development



Torrey Trahanovsky
tnt29@pitt.edu
Junior

Third year Information Science and Business Supply Chain Management double degree student, focused on Innovation Labs in the corporate setting



Josh Arabia
josh.arabia@pitt.edu
Junior

Junior studying computer science with a focus on video game design and production

Past Participant Highlight Pitt Challenge 2019

Past participant Collin Wolf shares his journey from the 2017 Pitt Challenge where he first presented MediCase, leading him to his current multi-faceted pharmaceutical business, Cassian Solutions.

Then

"From having my first experiences working for specialty pharmacies, the problem of having pharmacists spend a lot of their time on the phone like a telemarketer is ripe for innovation and improvement. Our first prototype involved ripping off the heads of pez dispensers and making a phone case jammed with altoids to demonstrate the idea."



Now

"Now we have a functional product used in patient studies for HIV Prophylaxis. We also have a software platform that automates patient data collection and pharmacy workflows which we are commercializing today."

Award Summary Pitt Challenge 2019

First Place

Cash prize of \$3000

Second Place

Cash prize of \$2000

Third Place

Cash prize of \$1000

Interactive Health Kiosks

Amazon Fire Tablets

Virtual Medical Simulation

Leap Motion Controller

Medical Education Game

Classic NES and ega Genesis Game Systems

Big Data

500GB External SSD

Remote Patient Interaction

Google Home Hub

Electronic Health Records

Rocket Notebook

Tech and Mental Health

One year subscription to Headspace

Improved Dictation

TT Easy Trans Smart Language Translator

Best UiPath Automation Hack

UiPath/MLH Backpack

Best Use of Google Cloud

Google Home Minis

Best Domain Registered with Domain.com

Domain.com Backpack

Best Use of MongoDB Atlas

Brand MongoDB AirCharge Plus

To view all project submission presentations, visit: <https://drive.google.com/open?id=1Q-8A0jotvOz5ti9NrPX2dzFk9kZUCUjJ>

First Place Pitt Challenge 2019



ZeroDecay

ZeroDK

[Devpost Link](#) // [Presentation Link](#)

"We're the Progressive Snapshot for dental hygiene and enable insurance providers to quantify real-time individual risk for dental disease while enabling end users insights into their oral care habits. We did this by creating a toothbrush and dental floss holder. This smart device can track the time and date you used each item and for how long."



First Place Team Member Profiles



Sohail Rana | 3rd Year Dental, University of Pittsburgh

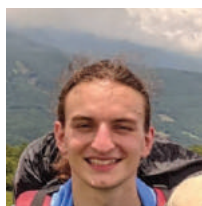
smr140@pitt.edu

Major: Doctor of Medicine in Dentistry

Other skills/languages: Learning Arabic

Dream job: Dental Entrepreneur

Favorite hobby: Working on Cars, traveling, and reading



Maxwell Shaginaw | Senior, Penn State University

mcs5742@psu.edu

Major: Computer Engineering

Other skills/languages: MATLAB, VHDL

Favorite hobby: rock climbing



Tyler St. Amand | Freshman, Penn State University

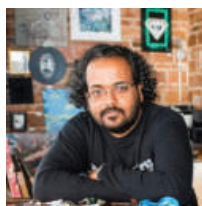
stamandtyler@gmail.com

Major: Software engineering

Other skills/languages: Basic C++, C#, HTML, CSS, JavaScript, Python

Dream job: C# Backend Developer

Favorite hobby: Playing a full drum set



Muntaser Syed | 2nd Year PhD, Florida Institute of Technology

mysed2011@my.fit.edu

Major: Computer engineering (ML and Wireless sensors)

Other skills: programming, cyber security, IoT, AI, Blockchain

Dream job: Head R&D scientist at Google/Microsoft/Amazon or a national laboratory

Favorite hobbies: Music (play guitar and bass), Hackathons



Andrey Popkov | Graduate Student, University of Pittsburgh

aap102@pitt.edu

Major: MS Management Information Systems

Other skills/languages: Startup of products/departments/companies, Project management, Business processes optimization, Budgeting and finance control, Marketing strategy and tactics, Broad technology knowledge, Russian

Dream job: Complex IT project department director

Favorite hobby: Traveling

Second Place Pitt Challenge 2019

Simpl

[Devpost Link](#) // [Presentation Link](#)

"Using Computer Vision to analyze your motor patterns in real-time, Simpl analyzes your joints in order to gather information about how you move. Simpl gives auditory feedback as perform physical therapy exercises and workouts. Using biometric analysis, Simpl helps diagnose patients with muscular imbalances as well as treat patients when the presence of a healthcare professional is not around."



Team Members

Andy Kong | Sophomore, Carnegie Mellon University

akong@andrew.cmu.edu

Major: Computer Science

Other skills/languages: Chinese, Juggling, Python

Dream job: Technical founder of a wearable device startup

Aashai Avandhani | Sophomore, Carnegie Mellon University

aavadhan@andrew.cmu.edu

Major: Statistics and Machine Learning/Software Engineering

Other skills/languages: NLP, Python, Java, Data Science

Dream Job: Using programming/data analysis to better the lives of others

Kunal Gandhi | Junior, University of Pittsburgh

kunalgandhi99@gmail.com

Major: Neuroscience and Computer Science Majors

Other skills/languages: English, Mandarin Chinese, Gujarati, Java, Python, R, Matlab

Dream Job: Finding the intersection between health and technology

Third Place Pitt Challenge 2019

SiMMan

[Devpost Link](#) // [Presentation Link](#)

"Team siMMan's project is a virtual reality surgery simulator aiming to streamline surgery simulation creation and expansion. The simulation focuses on the ability to import surgery scenarios in a virtual environment for teaching and practice settings. These scenarios can be made extremely accurate by using image processing technology on MRI and CT scans in order to convert them to 3D models for the simulations."



Team Members

Jacob Puckowitz | Senior, University of Pittsburgh

jsp64@pitt.edu

Major: Mechanical Engineering

Other skills/languages: ANSYS, computer modeling

Dream Job: Design oriented engineering

Jacob Shrubb | Senior, University of Pittsburgh

jas558@pitt.edu

Major: Statistics and Machine Learning/Software Engineering

Major: Mechanical Engineering

Other skills/languages: SolidWorks, Fusion360, Blender, Python, Matlab

Dream job: Design Electric Vertical TakeOff and Landing (E-VTOL) vehicles

Jarod Vickers | Senior, University of Pittsburgh

jav88@pitt.edu

Major: Computer Engineering

Other skills/languages: I once knew Spanish. Now I speak Java.

Dream job: Something in hockey/football management or player recruiting

Hervé Nyemeck | Senior, University of Pittsburgh

hervenyemeck@gmail.com

Major: Mechanical Engineering

Other skills/languages: Python, JavaScript, Improv, French

Dream job: Owner of a BnB in Scotland, or coffee shop in the south of France

Track Winners Pitt Challenge 2019



Interactive Health Kiosks

Kare Kiosk | Vincent Occhiogrosso (occhvs@farmingdale.edu)

A portable modular health monitoring kiosk that enables the user to update health records

<https://devpost.com/software/kare>



Virtual Medical Simulation

July Affect | Olivia Wininsky (Onw5@pitt.edu)

Roman Kasparian (RVK6@pitt.edu), Collin Abidi (cba15@pitt.edu)

Reduce mortality rates in hospital during training season by training med students to be used to respond to notifications and remember to deliver care

<https://devpost.com/software/july-effect>



Medical Education Game

Kapow! | Zach Lynn(Zach.lynn10@gmail.com) & Ilana Udler (iyu1@pitt.edu)

An interactive way to log seizure patterns for children

<https://devpost.com/software/kapow-8oi0ft>



Big Data

Snack Check | Kenan Rustamov (ker108@pitt.edu), Elijah Kajinic (elk75@pitt.edu)

A new, responsive mobile application that seeks to accommodate a wide array of dietary preferences and restrictions when offering recipes

<https://devpost.com/software/medical-tracker>



Remote Patient Interaction

Meditrace | Abhinav Mamidipaka

An app that logs symptoms as they are experienced in real-time

<https://devpost.com/software/medical-tracker>

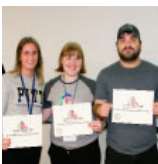


Electronic Health Records

GoHabit | Charlie Yang(haoy2@illinois.edu), Takumi Li (feiyang3@illinois.edu)

The behavioral change platform that boosts employee health and promotes business success

<https://devpost.com/software/gohealth-xwyflj>



Tech and Mental Health

StressOS | Emily Novak (emilynovak@pitt.edu), Anna Shafer (ars216@pitt.edu), Andrew Dant (agd25@pitt.edu), Dan Farquhar (dbf5118@psu.edu)

A biofeedback app to use while performing a deep breathing exercise to combat stress and elevated blood pressure

<https://devpost.com/software/stressos-3m70st>



Improved Dictation

HelpMe | Richard Rosenthal (richard.rosenthal@acd.ccac.edu)

A voice app that offers a more affordable replacement to life alert

<https://devpost.com/software/alexa-first-aid-kit-3tfscw>

Major League Hacking Awards Hackathon 2019



MongoDB

Neurocare | Megan Ung (ung.meg@gmail.com), Stephen Price (sprice1@andrew.cmu.edu), Serano Tannason Ng (stng@andrew.cmu.edu)

A suite of digital biomarkers to measure neurocognitive decline

<https://devpost.com/software/neurocare>

Domain.com

Bugs vs Drugs | Neha Hafeez (neh43@pitt.edu74), Vaidehi Patel (vai-bhavamishu@gmail.com), Catherine Pressimone (cap128@pitt.edu)

A clinical microbiology teaching game that reframes medical education into an interactive scenario driven game to teach students how to diagnose and treat patients presenting with various infectious diseases

<https://devpost.com/software/bugs-vs-drugs-a-clinical-microbiology-teaching-game>

Google Cloud

Ellie | Andrew Gagen (amg285@pitt.edu), Madelyn Frank (mef108@pitt.edu)

A mental health chatbot app that reaches out to you and can send your mood data to your therapist

<https://devpost.com/software/ellie>

Uipath

Meditrace | Abhinav Mamidipaka

An app that logs symptoms as they are experienced in real-time

<https://devpost.com/software/medical-tracker>

Other Submissions Hackathon 2019

Aware | Robert Kwiat (rek78@pitt.edu), Sridhar Reddy Velagala (Srv28@pitt.edu)

An iOS application that provides instant feedback for whether a skin growth is cancerous, facilitating early detection

Blossom | Alexis Mingey (aem110@pitt.edu), Annalisa Nguyen (Aln71@pitt.edu), Yu Sun (yusun31tc@gmail.com), Victoria McCrary (Bhero122@gmail.com)

Personalized monthly adherence packaging and delivery service based on scheduled lab values, routine patient reported outcomes, and chronic disease state management tools

Cool Document Analyzer | Joshua Lane (Jtl56@pitt.edu), Calvin Yu (cay44@pitt.edu), Matthew Wojtowicz (wojtowicz.m@husky.neu.edu), Jason Chukwu (Juc80@pitt.edu)

Allow people to more easily understand their medical records

CPR Hero | Robert Xu (Rox5@pitt.edu), Spencer Miller (sdm74@pitt.edu), Ryan Yang (cxy99@mit.edu)

A simple game that introduces kids to CPR

Disease Sim | Gabe Balannik (gib24@pitt.edu), Zhixiang Teoh (zht17@pitt.edu), Sean Shmulevich (szs23@pitt.edu)

A single player disease spread simulator

HeelHeal | John Ng (ngjohn15@gmail.com), Alan Shen (alshen@unm.edu)

An app that analyzes a user's foot image to determine the healing rate and medical suggestions

Helpful Bear | Karen Habermusch (kah277@pitt.edu), Shelby Vanvliet (slv33@pitt.edu), Elizabeth Jones (ebj8@pitt.edu)

Bear is here to help! He wants his friends to stay happy and healthy, so he likes to check up on them every once in a while. This game teaches kids the importance of physical and mental health.

Live It | Abilash Subbaraman (asubbara@andrew.cmu.edu), Hariharan Ramasubramanian (hariharr@andrew.cmu.edu), Harshine Visvanathan (hvisvana@andrew.cmu.edu)

An interactive game which guides and educates you towards a healthy you, assigning personalized characters and scenarios

Mindful Browsing | James Brennan (jtb117@pitt.edu), Allie Walker (anw89@pitt.edu), Ben Rucker (brucker117@gmail.com), Ben Nathanson (hvisvana@andrew.cmu.edu), Zach Grimaldi (zpg6@pitt.edu)

A Chrome extension that empowers users to browse the internet safely by proactively tagging search results known to be toxic, false, or misleading

Other Submissions Hackathon 2019

ML Stim | Joey Kilgore (joey.a.kilgore@gmail.com), Brian Xiong (Bxiong1000@gmail.com), Adam Savel (Adam.Savel@rockets.utoledo.edu)

Hardware that uses machine learning to optimize electrical stimulation to block pain

Pill Identity | Halmon Lui (luih@wit.edu)

Identifying pills from your cabinet for people who have difficulty seeing

PittCare | Vaibhav Shrivastava (vaibhavamishu@gmail.com)

Blockchain based system for tracking patients; prescription records

Preemptive Disease Screenings through EHRs |

Elxie Munyeneh (emunyene@uncc.edu)

An app that performs batch scanning on EHRs to reduce costs in healthcare and prevent nationwide outbreaks or hidden conditions

Rx Guardian | Jeffrey Onyeador (jeo39@pitt.edu),

Raja Krishnaswamy (Rjthescholar@gmail.com), Philip Matthew (ptm18@pitt.edu)

Reduce preventable adverse drug events by providing a path for simple and accurate communication of medication lists to occur

Sched 'It | Carattica Harben (cara.harben@gmail.com),

Heather Dillman (HLD42@pitt.edu), and Jasmin Lizardo (jcl96@pitt.edu)

A medical scheduling tool for the Google Assistant with Google Calendar integration that makes scheduling a doctor's appointment as easy as saying, "Hey Google!"

Sitting Companion | Wen Guangxue (Guw16@pitt.edu),

Wu Yue (yuewu9512@gmail.com)

An app that monitors incorrect sitting posture and reminds you via a notification

Xwait | Joseph Monaco (jcm132@pitt.edu), Shane Seager (sjs193@pitt.edu),

Gianna Emmett (GME20@pitt.edu), Darius Ramavarapu (Drr52@pitt.edu)

A platform that shows how long the wait time is during walk-in hours at student health

Addendum A Judging Criteria Matrix

1. Technical complexity achieved - How ambitious was the project and how much did they complete?									
Too simple	Too ambitious and failed			About right for 24 hours	Very technically skilled		Weeks of work in 24 hours		
1	2	3	4	5	6	7	8	9	10
Total multiplied by 3 =									
2. Was the problem clearly defined with a direct link to a user pain (empathy and clarity)?									
Confusing				Understands problem and is clear	Deep knowledge of problem			100% clear	
1	2	3	4	5	6	7	8	9	10
Total multiplied by 2 =									
3. Creativity - Does the solution attempt to solve the problem in a novel way?									
Basic solution	Light modification from current standard			New solution	New and it makes a lot of sense		Extremely novel knowledge and connection		
1	2	3	4	5	6	7	8	9	10
Total =									
4. Simplicity - How practical is the solution as it pertains to the end user?									
Very complicated				Elegant and very easy to adopt					
1	2	3	4	5					
Total =									
5. Value - How large is the market potential and/or human impact?									
Low \$ not many people				>\$B or >100M people					
1	2	3	4	5					
Total =									
6. How likely are you to recommend this product to a colleague?									
1	2	3	4	5	6	7	8	9	10
Total =									
7. What % of your investable income would you spend on this solution?									
0	10%	25%	50%	75%	100%				
1	2	3	4	5	6				
Total =									
Grand Total =									

Addendum B Judges

Name	Organization	Title/Expertise
Al L'Altrelly, PharmD	UPMC	Pharmacy Administrative Director of UPMC Presbyterian-Shadyside, Presbyterian Campus
Arjun Hattiangadi	UPMC Enterprises	Director, Healthcare Portfolio Development and Management
Arup Mukherjee	Honeywell Vocollect	Technical Project Lead
Brian Bobby, PharmD	Novartis	Pharmacy Consultant, MSL
Daniel Mosse, PhD	University of Pittsburgh	Computer Science Professor and Researcher
Gregory Shevchenko	UPMC Enterprises	Principal Architect
Hashim Al Hassan, PhD	Switched Source	Applications Engineer
Kelly Bobby, PharmD	MaxorPlus, Ltd.	Clinical Pharmacist
Marc Tata	DePuy Synthes Companies	Spine Sales Consultant
Marijanel Alilo, PharmD	UPMC	Hospital Pharmacy
Philip Empey, PharmD PhD	University of Pittsburgh, School of Pharmacy	Associate Director, Institute of Precision Medicine; Pharmacy and Therapeutics
Prachi Joshi	Clinical Translational Science Institute	Translational Research, Medical Product Development
Raja Sooriamurthi, PhD	Carnegie Mellon University	Computer Science
Thomas D. Nolin, PharmD, PhD	University of Pittsburgh, School of Pharmacy	Associate Professor and Researcher
Tyler Hoffman, PharmD	UPMC	Pharmacy Administrative Fellow of UPMC Presbyterian-Shadyside, Presbyterian Campus

Addendum C Mentors

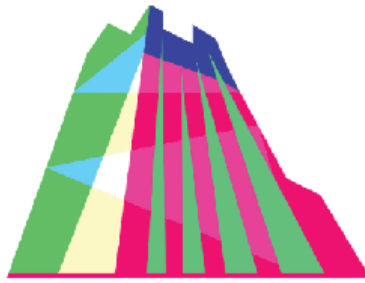
Name	Organization	Title/Expertise
Dave Krebs	PQS	Computer Engineering
Jean Nickleach	UPMC	Dietitian
Jessi Trybus	Sim Coach Games	Chief Games Office
Jill Lavella, PharmD	Value Drug	Retail Pharmacist
John DeJames, PharmD	Value Drug	Pharmacy Strategy Consultant
John Maier, PhD MD	CTSI	Director of Research and Development, Co-Director of Innovation Core for CTSI
John Rice	UPMC Enterprises	Software/Hardware Engineer
Keith Callenberg, PhD	UPMC Enterprises	Director of Machine Learning
Pat Lavella, PharmD	Value Drug	Pharmacy Strategy Consultant
Randall Smith, PharmD	Pitt Pharmacy	Associate Dean, Pitt Pharmacy
Ross Beresford	Pitt SciVelo	Early stage physical medical device and gene therapy development
Tony Kolp	Epic	Software Developer
Tricia Pil, MD	Gateway Health Plan	Pediatrician, Medical Director
Weiyu Zhang	Epic	Software Engineer
Zariel Johnson, PhD	UPMC Enterprises	Program Manager – Early Stage Digital Health Innovation

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The Pitt Challenge's success is in part due to the large support of our sponsors. A special thank you to: *University of Pittsburgh School of Pharmacy, Pitt CTSI, UPMC Health Plan, UPMC Enterprises, Google, Microsoft, Epic, GNC, Thirty/Three Foundation, The Pittsburgh Penguins Foundation, EMBRACE Pittsburgh, CORE, and Value Drug Company.*



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