Forrest Z. Shooster

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Academics

Rochester Institute of Technology – 3.76 GPA
- » Majors: Biomedical Engineering & Game Design and Development
- » Minors: Electrical Engineering & Japanese

Magna Cum Laude
Dean's List every semester/quarter
Student of the Honors Program

Skills

Software Tools
- » MATLAB, LabView, C#, python, C++, Ruby, Java, JavaScript, C, Apex, HTML/CSS, PHP, SQLite databases
- » Unity and Unreal Game Engines, Qt (python and C++)
- » Electronic and Mechanical CAD tools (KiCAD, LTSPICE, Solidworks, OrCAD/Cadence, OnShape)
- » Microsoft Office (Excel, Word, Powerpoint), Overleaf, Arduino, Energia, Visual Studio, Eclipse, Minitab, JMP

Hardware Design and Engineering Skills
- » Machine Learning, Numerical Methods, and Biorobotics
- » AC and DC circuit design and analysis, analog electronics, classical controls, analog and digital filters
- » 3D Printing, materials, biomaterials, biomechanics, medical device design, heavy rocketry (L2), ham radio
- » Familiar with GHTF regulatory processes including FDA approvals for devices and software, human subjects research certified, HIPAA, ISO / IEC standards, MDR / MDD, design of experiments, prosthetic limbs, statistics
- » EMG / EKG / EEG / EOG / PPG recording & analysis

Lab Skills or tools / Robot Control Experience
- » Suspension, adherent, and 3D tissue growth, chicken embryo primary cell cultures (cardiomyocytes, neurons), mammalian cell transfection (CHO), western blotting,
- » Cell counting, hemocytometer, aseptic technique, E. coli pGLO transformation, SDS/PAGE, DNA extraction, qPCR, DNA agarose gel electrophoresis, cell freezing
- » Light and fluorescent microscopy
- » Anatomy, quantitative physiology, histology, genetics
- » Fluid mechanics, bioanalytical microfluidics, potentiostat
- » Sensor characterization and evaluation, step response characterization, PID controllers, digital multiplexing
- » Robots: Baxter, AL5B Claw, AmigoBot, Hexapod, A4WD1
- » Lab Streaming Layer (LSL), Robot Operating System (ROS)
- » Motor control, SPI, I^2C, serial, UART
- » General & organic chemistry, general biology

Spoken/Written Languages
- » Fluency: English, Japanese (spoken, including technical)
- » Some Competency: Japanese (written), Italian

Work Experience

Spine and Wellness Centers of America – Hollywood, FL   Position: Research Coordinator and Lead   June 2016 – Aug. 2016 / June 2018 – Sept. 2019
- » Design and development of Mixed Reality environment and custom VR UI system
- » Designed system for Unity for data acquisition from multiple sources (PPG, EEG, actions, surveys)
- » Redesigned existing RF ablation research and directed experiments with team of MDs and students **(e-Poster presented at NANS 2020)**
- » Supported research approval process and collaborated with physicians and residents in further research study design and interacted with hospital IRB (obtained HSR certification and IRB approval)

RIT - Electrical Engineering Department - Rochester, NY   Position: Teaching Assistant (Classical Controls Lab)   Jan. 2018 – May 2018
- » Designed updates to classical controls lab experiments to assist students in completing tasks, verified student activities to ensure academic honesty, collected data on and analyzed performance characteristics across all students' experiments to assist with student performance of experiments, graded lab reports, and instructed students in methods of coursework.

Interactive Games and Media Department, RIT – Rochester, NY   Position: Medical Game Designer   Jan. 2017 – Apr. 2018
- » Designed and programmed a simplified simulation to teach students at the University of Rochester's medical school about maternal physiology and **the project was presented at the 2018 Department of Obstetrics and Gynecology Resident Research Presentation Day**
- » Led team of developers and artists and collaborated with professors and doctors
- » Researched physiologically normal values of parameters and created simplified visualizations of physiological events on a time scale during gestation requiring time-sensitive response by students to patient status and outcomes

Workinman Interactive, LLC – Rochester, NY   Position: Gameplay Programming Co-op (and sound designer)   May 2015 – Aug. 2015
- » Programmed, created levels for, and created sound effects for several expansions on multiple projects
- » After one such expansion serving as the lead developer on both projects. I also edited music tracks for use in these expansions. I was in charge of helping another worker get acclimated to both projects for a short time
- » I also created and edited many sound effects, voice-overs, and stingers for as well as edited existing music for several new games using Disney and Marvel IP

Answering Service Care – Margate, FL   Position: Software / R&D Engineer   May 2008 – Present
- » Saved them roughly $50,000 in costs by working on Salesforce setup, trigger programming, and Ruby scripting. This experience also gave me some exposure to other business concepts such as balance sheets.
- » I also wrote ruby scripts to parse complex data fields and correct certain aspects of hundreds of thousands of addresses by standardizing them and refactoring them.
- » I also thereafter spent time post-validating said information and managed to clean, refactor, and immigrate four different databases of uniquely formatted records from TBS to Salesforce whilst subsequently correcting all invalid address information.

Volunteering

South Florida Institute of Sports Medicine – Weston, FL   Volunteer for Physical Therapy
- » Maintained cleanliness of on hand clothing, towels, and beds
- » Spoke with patients about their lives and how their condition has affected them recently to assist physical therapists in gathering information while keeping patients entertained
- » Assisted in identifying broken or potentially harmful environmental factors to protect patient health

University of Rochester Medical Center Clinton Crossings – Rochester, NY   Friend of Strong Volunteer
- » Wheeled patients between departments while entertaining them and ensured all were comfortable and receiving timely care
- » Kept detailed documentation of inventory of all rooms in the Orthopedics and Sports departments

Organization Memberships

» RIT Game Developers Club (President and Founder, 2013-2018)	Jan., 2013 – Apr., 2019
» Neurotechnology Exploration Team lab (former project lead; current member of the board)	Sept., 2018 – Present
» Phi Sigma Pi: Delta Alpha Chapter (past positions include Karen's Walk co-chair, historian, & treasurer)	Nov. 2013 – Present
» RIT Launch Initiative (past Avionics Team member and past Logistics lead)	Aug., 2015 – Apr., 2019
» Tau Beta Pi: Engineering Honor Society	Nov. 2017 – Present
» International Neuromodulation Society	July, 2018 – Present
» Order of the Engineer	May, 2019 – Present
» IEEE (member of EMBS)	Sept. 2015 – Present

Awards

1st place for Audience Favorite and YouTube Video in RIT ARM Student Design Contest for my Multidisciplinary **Senior Design** Project, **2019**	Lead Engineer for Gamified Rehabilitation for Independent Practice (G.R.I.P.), a game to teach transradial amputees how to control their myoelectric transradial prosthetic arms
Best of Showcase at the **2nd** International Conference on Game Jams, Hackathons, and Game Creation Events, **2017**	Game designer and sound designer of "The Big Wave" *doi:* http://dx.doi.org/10.1145/3055116.3055118
Nathaniel Rochester Society Scholar, **2017**-2019	Leadership, extracurricular activities, and community service
1st place for Technical Merit and YouTube Video in RIT ARM Student Design Contest, **2016**	Software Designer of Avionics Systems for Rocketry
Imagine RIT Gold Sponsor's Award, **2012**	Sound designer and programmer for "Chain Gang Chase"
Member of the Grand Challenges Scholars Program at RIT	Accepted because of diverse background and achievements
"Leaving a Legacy" Award for Impactful Graduating Senior	Provided extensive guidance and leadership for NXT Team

Personal Projects

Neurotechnology Initiative at RIT
- » Led a team to design and implement an EEG-controlled, multi-platform, always-on-top keyboard for the disabled (ALS / MD)
- » Identified problems in a team of over 30 people, gathering information, implementing standard practices, predicting future problems and risks, and teaching members how to perform neurotechnology research; **earned "Leaving a Legacy" Award**
- » Started and organized human subjects research study design and approvals process, created documents, and supervised risk management
- » Beginning process for IRB review of a new study; **designed materials for a study including minors, the elderly, and neurologically impaired**

Founder and Past President of Game Developers Club at RIT
- » Founded club and gathered members via flyers, tabling, posters, outreach to academic departments, and outreach during college events
- » Collaborated with various clubs and professors to sponsor and host game jam events, several large and small social events
- » Established a set of materials for educating people how to make games and passed them on to a new board of officers
- » The club has continued to be successful after my graduation

Karen's Walk (Co-Chair)
- » Communicated with campus safety representatives at RIT to reserve space and ensured safe procedures were being followed
- » Assisted in hosting, acquiring sponsors for, running, and managing a walk for cardiomyopathy research
- » Planned food to account for vegan, vegetarian, and religious eating requirements

The Big Wave: A Game Designed for the 2017 Global Game Jam
- » Designed game for the colorblind, deaf, and hard of hearing
- » Best of showcase at the International Conference on Game Jams, Hackathons, and Game Creation Events
- » **The ACM publication may be found at** http://dx.doi.org/10.1145/3055116.3055118

Personal Projects in Machine Learning, Electronics, Robotics, and Prosthetics Design, Simulation, and Control
- » Led a team to design and implement a **machine learning** based **EEG-controlled simulated transradial prosthetic limb**
- » **Designed and developed a Unity 3D simulation of a transradial prosthesis with an LSL interface** and glove thermistor array interface
- » Designed a robotic 3D-printed finger with bidirectional control and built-in positional feedback for **closed loop control**

Hobbies

- » Music synthesis, game design, bass guitar, piano, heavy rocketry (NAR member), amateur radio (Call sign: KS4RGO, ARRL member)