Forrest Z. Shooster

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Academics

Rochester Institute of Technology – 3.76 GPA

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

- Majors: Biomedical Engineering & Game Design and Development
- Minors: Electrical Engineering & Japanese

Skills

Computing Languages and Tools

- Various programming languages including MATLAB, C#, python, C++, Ruby, Java, JavaScript, C
- Unity and Unreal Game Engines, Qt (python and C++)
- Electronic and Mechanical Computer Aided Design tools (KiCAD, LTSPICE, Solidworks, OrCAD, OnShape)
- Machine Learning, Numerical Methods, and Biorobotics
- Microsoft Office (Excel, Word, Powerpoint), Overleaf, Arduino, Energia, LibreOffice

Hardware Design and Engineering Skills

- AC and DC circuits, Analog Electronics, Classical Controls, Analog and Digital Filters and Signals, 3D Printing, Biomaterials, Biomechanics, Medical Device Design, Heavy Rocketry (L2), Ham Radio (Technician)
- Familiar with GHTF Regulatory Processes including FDA approvals for devices and software, Human Subjects Research, HIPAA, ISO / IEC standards, MDR / MDD, Design of Experiments, Prosthetic Limbs, Statistics

Lab Skills / Robot Control Experience

- Suspension and adherent tissue growth, embryonic primary cell cultures (cardiomyocytes, neurons)
- EMG / EKG / EEG / EOG / PPG Recording, Preprocessing, and Analysis including Numerical Methods, and Sensor Characterization and Evaluation, Step Response Characterization, PID Controllers, Digital Multiplexing
- Light and Fluorescent Microscopy
- Anatomy and Quantitative Physiology, Histology
- Fluid Mechanics, Bioanalytical Microfluidics
- Robots: Baxter, AL5B Claw, AmigoBot, Hexapod, A4WD1
- Lab Streaming Layer (LSL), Robot Operating System (ROS)
- Motor Control, SPI, I^2C, Serial, UART
- Stress Analysis, Familiarity with Materials Science

Spoken/Written Languages

- English (fluent)
- Japanese (intermediate proficiency)
- Italian (elementary proficiency)

Work Experience

Spine and Wellness Centers of America – Hollywood, FL Position: Research Coordinator and Lead

June – Aug., 2016
June, 2018 – Present

- 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
- 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)

Interactive Games and Media Department, RIT – Rochester, NY Position: Medical Game Designer

Jan. 2017 – Apr., 2018
With plans to continue upon grant renewal

- 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

Volunteering

South Florida Institute of Sports Medicine – Weston, FL Volunteer for Physical Therapy – 29 hours

- 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 – more than 60 hours

- 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
- Investigated and identified methods of process improvement for the department

Organization Memberships

- RIT Game Developers Club (President for 4yrs, Founder, 2013-2018) — Jan., 2013 – Present
- Neurotechnology Initiative, NXT (Former Project Lead, Current Member of Board) — Sept., 2018 – Present
- Phi Sigma Pi: Delta Alpha Chapter — Nov. 2013 – Present
  (Fundraising, Scholarship, Alumni Chairs; Historian; Treasurer (twice); Karen's Walk Co-Chair)
- RIT Launch Initiative (Avionics team member and Past Logistics lead) — Aug., 2015 – Apr., 2019
- Tau Beta Pi: Engineering Honor Society — Nov. 2017 – Present
- Undergraduate member of the International Neuromodulation Society — July, 2018 – Present
- Order of the Engineer — May, 2019 – Present

Awards

1st place for Technical Merit and YouTube Video in RIT ARM Student Design Contest, **2016**	Software Designer of Avionics Systems for Rocketry
1st place for Audience Favorite and YouTube Video in RIT ARM Student Design Contest, **2019**	Lead Engineer for Project GAGE, now called Gamified Rehabilitation for Independent Practice (G.R.I.P.)
Nathaniel Rochester Society Scholar, **2017**-2019	Leadership, extracurricular activities, and community service
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***
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

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**

Started new 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

Karen's Walk (Co-Chair)

- Communicated with Campus Safety at RIT to reserve space and ensure safe procedures were being followed
- Participated in run and assisted individuals lagging to motivate them to keep going, helping anyone in need of assistance
- Assisted in hosting, acquiring sponsors for, running, and managing a walk for cardiomyopathy research

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**

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 (by ear), piano (by ear), heavy rocketry (NAR member), amateur radio (Call sign: KS4RGO), general programming, designing game development and scientific tools, consulting for research groups, playing games, inventing / ideating, hiking, mountain climbing, traveling (been to Japan, the UK, Spain, Canada, Israel, and various states around the USA), cooking, and teaching