Joshua Moavenzadeh

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Education

Carnegie Mellon University - Class of 2020
Major: Statistics and Machine Learning
Minor: Computer Science
GPA: 3.5
Dean's List with Honors: Fall 2016
Courses:

- 36-225 Probability Theory
- 21-256 Multivariate Analysis
- 15-112 Programming and Computer Science
- 36-226 Statistical Inference
- 21-241 Matrices and Linear Transformations
- 15-122 Principles of Imperative Computation
- 36-401 Modern Regression
- 15-213 Introduction to Computer Systems
- 85-213 Human Information Processing and AI
- 36-350 Statistical Computing

Experience

Software Engineering Intern - IHMC Robotics (May 2017 - Aug 2017)
Simultaneous motion planning for robotic arms in a shared workspace

- Created a bidirectional RRT algorithm for trajectory generation
- Integrated collision detection and obstacle avoidance
- Improved path smoothing and optimization techniques
- Experimented with developing a real-time continuous planner

Multi-robot box pushing with mobile robots

- Built a generic controller API for mobile robot navigation
- Implemented a geometric path-forming algorithm to account for curvature constraints

15-112 Computer Science Teaching Assistant - Carnegie Mellon SCS (Dec 2016 - Current)
Introductory programming course of 400+ students covering material recursion, object-oriented programming, and efficiency analysis

- Create lesson plans, teach weekly labs and recitations, organize and lead review sessions
- Hold weekly office hours, grade quizzes for correctness and homework submissions for style
- Mentor term projects, host and mentor a hackathon, create a puzzlehunt

Lead Staff and Instructor - Metrorock Climbing Centers (Jan 2014 - Aug 2016)
Organized and ran rock climbing summer camps and afterschool programs
Taught classes on climbing safety and technique

Projects & Awards

Augmented Reality Rock Climbing - Finalist, APT Sponsor Award (Dec 2016)
Developed a competitive time-trial game to be used in climbing gyms around the Pittsburgh and Greater Boston areas
Used a Kinect sensor to track climbers in relation to projected game objects to simulate touch screen functionality
Nominated as finalist from 400+ submissions and awarded APT's Sponsor Award. Featured on FloClimbing

TrailerVR - Grand Prize Winner, HRT Sponsor Award (Nov 2016)
Built an augmented reality Android and Google Cardboard app
Earned first place and awarded "Best Overall" from Hack112 sponsor Hudson River Trading

CtrlCore - TartanHacks Finalist, Rockwell Automation's Social Impact Award (Feb 2017)
Created a streamlined home automation hub with integrated controls for smart home devices
Built an interactive projection display that served as the system's user interface by combining a Leap Motion sensor with a micro projector
Selected as a top finalist from the expo and awarded Rockwell Automation's Social Impact Award.

Interests

Rock Climbing, Participating in Puzzlehunts and Hackathons

Skills

Python, C, Java, R, MATLAB, Octave, Git